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# THE JOURNAL- LANCET

The Journal of the Minnesota State Medical Association  
and Official Organ of the  
North Dakota and South Dakota State Medical Associations

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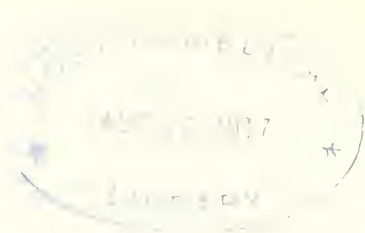
W. A. JONES, M.D., EDITOR

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VOLUME XXXVI

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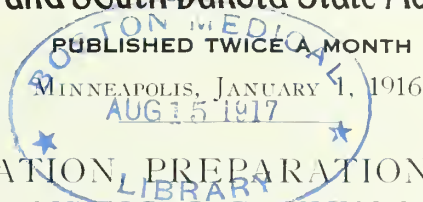
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OL. XXXVI



No. 1

## THE EXAMINATION, PREPARATION, AND CARE OF SURGICAL PATIENTS\*

By CHARLES H. MAYO, M. D.  
ROCHESTER, MINNESOTA

The rapid advances made in medicine during the past three decades have necessitated many changes in the methods of general examination of surgical patients, and also in their preparation and after-care. Reviewing this period in the general practice of medicine and surgery, it appears that the methods which have survived are few, and simple in principle and application, as compared with the original methods. This includes all antiseptic surgery.

In medical practice there has been almost a revolution in variety and principles since we have come to understand bacteria and the diseases produced by them. We now know that most diseases arise from infection; and the acute condition or the late results of it are being treated. Briefly, the newer medicine is the understanding of the varying stages of the processes of infection, of the increased or lowered body-resistance, as well as searching for the local focus and aiding in its elimination. In this connection, dentistry and diseases of the nose and throat have received much attention in the study of local foci of infections.

In regard to the patient: As a profession we are probably less acute in our general observation than was the practitioner of the old school. In his day everything depended on observation, and apparently no little thing was overlooked, whereas we are supported by many laboratories of special investigation. While it is possible in the present day to acquire a general survey of

the practice of medicine in its various branches, it is wholly impossible for a physician to practice, and to apply unaided, the principles of the various laboratories and recognized specialties. For example, we are as dependent as ever on tests of the urine. Reports of albumin and casts, while intimating diseased kidneys, do not prove them essentially diseased, but lead the physician to search for the irritant in an acute or chronic infection, and to regard the kidney as an overworked eliminating organ; therefore, tests of renal efficiency have been developed.

Blood-examinations are not considered as infallible indications of special disease as they formerly were, but the count, character, and color-index of the cells are of great value. Blood smears and cultures are proving necessary to identify obscure infective conditions.

Laboratories for the study of bacteria, the preparation of vaccines and serums, and the examination of intestinal secretions, are also of increasing value. Intestinal parasites and bacteria often are found the cause of obscure general diseases other than the well-known tropical varieties. In the laboratories of research the specific effects of bacteria on animals in a study of the causes of obscure diseases, is most important.

Radiography is invaluable in the diagnosis of diseases of the alimentary tract, diseases and fractures of bones, diseases of the lungs, kidneys, ureter and bladder, and in locating foreign bodies, stones, etc. Radiography has the disadvantage of apparently being always correct in its evidence, and, even when contrary to the clin-

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.

ical findings, it is too often accepted as correct. Seldom, however, should a single, even though important, factor be taken to represent the true condition, but, rather, a detailed study of the various essential organs of the body. The body has a natural tendency to recover from disease. This is fortunate, since we are constantly overlooking conditions of which timely discovery would save much suffering and possibly life.

The electrocardiograph is of value in designating patients with heart muscle changes who may die suddenly during the first few weeks following operation, from fibrillation, instead of embolism, as is often stated. The blood-pressure is also of value in showing the elasticity of the cardiac muscle and blood-vessels. Too much attention is paid to a high systolic pressure alone; it is the relationship of the systolic and diastolic which gives the clue to the condition. Diastolic pressure above 110, or higher, is of great importance in influencing the judgment of the surgeon. A high blood-count may mean diminution of fluid. This should be corrected if possible. Transfusion of blood before operation is rarely resorted to, but in extreme anemia from recent loss of blood, either directly after operation or in delayed accidental hemorrhages, shock is greatly relieved by the direct transference of blood to the patient. There are many methods of transfusion, the former direct methods giving way to the indirect, which are now simple and safe, and permit the transference of a measured quantity of blood. Hemolysis is a factor to be considered, and, unless the urgency is great, should be tested between the donor and the recipient.

The keynote of progress in the 20th century is system and organization,—in other words, "team-work." This factor has been very noticeable in the medical progress of Germany, where true diagnostic hospitals have been established. Such hospitals conducted by the State through the medical department of its university would be of enormous value to the public and the medical profession in this country. Patients from all over the state could be sent by their home physicians to this hospital for diagnoses in rare, obscure, and complicated diseases. From these institutions patients could be returned to their home physician for medical or surgical care, with recommendations for such care, or be sent to special sanatoriums, or medical or surgical hospitals, as indicated. If returned to the home physician, included in the report of the case

should be sent references of the latest literature on the subject and information of where such could be procured. Unquestionably, the appropriation for such an institution would readily be obtained if the public but understood the value and saving to the State which would come from the prevention and cure of disease. There is no general estimate on the value of human life as compared with the value of animals, consequently these facts are slower in being generally appreciated from a purely monetary standpoint.

The starvation diet in the preparation of surgical patients has long been abandoned, the dangers of acidosis being nearly as great in starvation as in diabetes. The diabetics are accepted as a risk, and, except in emergencies, are always given preliminary treatment for their general condition, endeavoring to maintain the alkalinity at a high standpoint. The condition of children is improved by sugar and other glucose foods.

It should not be forgotten that treatment aids many patients more effectively before operation than after. Those who are suffering from starvation, loss of blood due to acute or delayed obstruction of the alimentary tract, should have a two-stage operation when possible. For example, in a case of pyloric tumor with obstruction, the body fluids should first be restored by enemas, liquid nourishment, and subcutaneous injection. Gastro-enterostomy is then done; and, after two or three weeks, when the patient is greatly improved, a pylorotomy is made, both operations being accomplished with greatly lowered risk to life.

Physies are less freely used than formerly. Because of their great depletion of the body-fluids and the fact that they disturb rest, laxatives should be given two or three days preceding the operation, instead of the night before.

There probably has been no more noticeable change in the preparation of patients for operation than that of preparing the skin. The old methods of applying soap poultices for several days so lowered the resistance of the skin to germ life that the area for operation was often a mass of pustules, a condition seldom seen in emergency operations. The present-day method of iodine application and similar rapidly acting agents has almost eliminated such infections. With these superficial cleansing methods, however, much care is used to protect and cover the skin about the incision during operation.

## THE AFTER-CARE OF SURGICAL PATIENTS

More attention is now given to relieve the suffering of surgical patients, at least during the first and second days after operation, by opiates and sedatives. These are not carried to the extent of obscuring the pain as a symptom of serious complication. Senn is quoted as having said that "when the last suture is tied in abdominal surgery the fate of the patient is sealed," a saying which is not true today, for many patients are saved by re-opening the abdomen for late hemorrhage or for obstructive conditions of the alimentary tract. Enterostomy made at the end of the third day from the commencement of obstruction, has saved many lives; if done later the results are not so successful. Patients in poor nutritional condition may be tided over temporary periods of gastric paralysis by jejunostomy. Dilatation of the stomach, following abdominal operations is more common than was formerly supposed; however, if discovered early, it may not be serious. If patients are not doing well, even if they do not complain of the stomach, a tube should be passed. Should there be dilatation, caused by paresis, the stomach should be emptied every six or eight hours until relief is obtained. If intestinal obstruction occurs it may be relieved by enterostomy as late as the night of the third day or the morning of the fourth.

Primary infection now rarely occurs in clean cases. A dry wound with a light dressing held by adhesive strips is the rule. Delayed infection, formerly attributed to catgut, we now know to be frequently caused by a dead space in which a blood-clot has become infected by bacteria carried through the vascular system from some local focus. These, however, should be classed among the preventable troubles. Large amounts of antiseptic catgut, used as sutures and ligatures in a limited space, become a menace from the chemical irritation, and the consequent excessive secretion, of the wound, such excessive secretion being Nature's method of washing out the antiseptic preparation before the phagocytic activity of the leukocytes has developed.

Induration of the wound should be looked for in patients with slowly rising temperature after five days, and, if found or suspected, should be opened by puncture.

Much benefit comes from the intelligent use of bacterial serums and vaccines in chronic diseases. If not effective, they are not so much to

be discredited as is their preparation, selection, or employment.

When patients are compelled to remain in bed for a long time they should be turned and moved as much as possible. They should also be urged to keep their limbs moving as much as their position and condition permits, which aids markedly in inhibiting muscular weakness occasioned by prolonged rest.

Getting patients out of bed as soon as possible after operation conserves strength, improves the mental attitude, prevents the lowering of blood-pressure and the change in the heart-muscles, and, apparently, has reduced the percentage of sudden deaths from embolism. The sooner patients can be removed from the depressing influence of general hospital life the more rapid their convalescence.

## DISCUSSION

DR. ARCHIBALD MACLAREN (St. Paul): Dr. Mayo has opened up a very fertile field for thought along a rather peculiar line. In the five minutes at my disposal, I can touch on only one or two points. It has always seemed to me that the most important point in the examination of each of our patients, either medical or surgical, should be, first, the taking of a systematic history. When as young practitioners we see our first patients, they are so few in number and the important points are so impressed upon our memories that we are apt to think that a history is quite unnecessary; but as we advance in years and as the number of our cases increases, we find, usually, that we cannot recall our early impressions, and therefore very important points in the history are lost. In my experience it is very exceptional for medical men to take histories which prove to be of any value to themselves or to anyone else. I find that the early histories of my own cases, although of some help, are very faulty. The systematic blank, of which Dr. Mayo speaks, should be the foundation for all such work, and even in the minor cases should be filled out and put away for future reference.

What Dr. Mayo has said with reference to a hasty or a snap diagnosis, is only too true. Every surgical diagnosis should be a careful and wise conclusion, drawn after summing up all of the facts of the physical examination, combined with the laboratory findings, in each individual case. It is always well to have several men go over the findings and separately sum up, and make a diagnosis in each case. We all make mistakes enough, but the older we grow and the more experience we have, the less glaring do our mistakes become.

If several men would combine, and make it a business to look over each case and check each other up, they would find it a valuable experience for themselves; and their patients would reap the benefit by the avoiding of useless operations, which are still all too frequent.

The systematic x-ray examinations are becoming every day of more importance. There are many things which the x-ray will tell us, but it cannot take the place of intelligent physical examination. The x-ray in many cases is a very decided help, while in others it is of



very slight importance. The röntgenologist is apt to place altogether too much importance upon his side of the examination, and to assume that he can, alone, make the diagnosis in many very difficult cases. The x-ray and the other laboratory findings are only helps, and should be carefully summed up by a man of experience.

The question of operation upon patients suffering from high blood-pressure, is one which frequently comes up today. Such patients often need surgical help, more often possibly than the patient with normal blood-pressure. Nearly every operation today can be done under local anesthesia, and it should be the operation of choice in this class of cases in every case excepting gangrene due to arteriosclerosis. The operations done under local anesthesia a few years ago did not appeal to me at all, because the anesthesia was such a poor pretense. But today with the modern methods of deep infiltration with a novocaine solution, nearly every operation can be done without any pain at all.

I remember the first so-called antiseptic operation that I ever saw. I was serving, temporarily, as interne at the City Hospital in St. Paul. Dr. Wheaton had just returned from Boston, filled with enthusiasm for the new Listerian system of antiseptic treatment of wounds. The case that we were operating on was a thigh amputation. Great preparation was made, principally by the use of carbolic spray. Dr. Wheaton laid out a trunkful of antiseptic dressings which were supposed to have some magic effect in themselves. You can imagine our disappointment when on the third day the dressings were removed, and it was found that the stump was, as usual, bathed with laudable pus. We all agreed that the antiseptic treatment was of no use. Dr. Markoe has brought us today a new thought, with his open-air

treatment of wounds, which is probably going to prove of great value in keeping our wounds free from their own discharge.

DR. JAMES E. MOORE (Minneapolis): There are many valuable deductions to be drawn from this illuminating paper of Dr. Mayo. I have one important point I wish to make, which I think will be of particular interest to the rising generation of surgeons, as well as to medical men. To the young surgeon I would say, do not begin the careful examination of a patient to find out what operation it is possible to do upon him; begin with the idea that you are going to find out whether he needs operation at all or not, in the first place. After having decided that the patient does need an operation, find out what operation it is that he needs, and when will you do it? Is it better to do it now or a day later? Is it better to do a part of it now and the rest later? The main point is this: I believe it requires greater acumen, and it is greater evidence of a surgical mind, for a man to say to his patient who is expecting an operation, "You do not need an operation; you are better off without it."

I have observed that there is something that comes to us partly by intuition and largely by education. Dr. White made an important observation this morning when he referred to making a diagnosis of aneurysm of the aorta. He stated that the man had a scar inside of the left scapula, and that this was a sure diagnostic point for aortic aneurysm. I think, however, he drew a wrong deduction from it. His deduction was, that the surgeon should be more careful about what he did. The proper deduction, it seems to me, is, that the medical man should not dabble with surgery when he does not know what he is about. (Laughter.)

## OPERATIVE TREATMENT OF BAD RESULTS AFTER FRACTURE\*

By JAMES E. MOORE, M. D.

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MINNEAPOLIS

This subject is chosen because every practitioner treats fractures, and all get some results that are far from satisfactory. This has always been an interesting subject, but its interest has been greatly increased since the advent of the skiagraph; for it not only aids us in diagnosis and treatment, but it makes our mistakes more apparent. A result that is satisfactory from a practical standpoint may show marked displacement and deformity in a skiagraph. Advantage has too often been taken of this fact by those who are anxious to bring suit for malpractice.

The two great misfortunes that may follow a fracture are, first, non-union, and, second, deformity accompanied by disability.

Our ideas concerning the causes of non-union have been materially changed within the past few years. We have learned that syphilis is not so frequent a cause as we formerly believed. Dr. Abbott, of St. Paul, recently reported a series of severe fractures among a group of miners, most of whom were suffering from syphilis, and there were no cases of non-union. Age was formerly believed to be a frequent cause of non-union, but the fact is that most cases of non-union occur in persons in middle life, youth and age being comparatively exempt. This mistake was doubtless due to the fact that fracture of the neck of the femur, which occurs most frequently in the aged, was so commonly followed by non-union. Within a few years, however, we have learned that the reason for non-union in these cases was,

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that the fragments were not brought in apposition by our former methods of treatment, and that, when the fragments are brought in apposition by modern methods of treatment, they unite in the majority of cases. We have also learned that, contrary to our former belief, fracture of the neck of the femur is quite common in youth and childhood. Non-union in these young people is practically unheard of, because the fracture is usually of the "green-stick" variety, and the fragments are not separated.

Many of the cases of coxa vara are really cases of unrecognized fracture of the neck of the fe-

this time; and he was sent home without treatment.

Doubtless many cases of non-union have been due to the presence of muscle and other tissues between the fragments; in other words, the fracture had not been properly reduced. At the present time by the use of the x-ray we can learn to a certainty when the fragments do not come in contact; and when they cannot be brought in proper relation by manipulation we adjust them through an open wound. There is therefore no longer excuse for non-union due to improper adjustment of the fragments.

There remains, unfortunately, a large number of cases of non-union for which the surgeon is



Fig. 1. Skiagraph of impacted fracture of the neck of the femur.

mur which have united in a faulty manner for lack of proper treatment. This skiagraph (No. 1) was taken from a lad of fourteen years, who came to the University Hospital in March, 1913. In September, 1912, while plowing, the horse stumbled, and the plow "kicked" him on the right trochanter. Although he felt some soreness and disability he continued to work until January, 1913, when he fell on the ice. He walked on the limb that day; but by evening he was unable to move the joint, and experienced pain when he walked. He was obliged to use crutches up to March, when he entered the Hospital. Upon admission he could not walk without pain, his hip was quite stiff, there was three-fourths of an inch shortening and marked eversion, and the skiagraph showed an impacted fracture of the neck of the femur. There was bony union at



Fig. 2. Graft placed in medullary cavity.

in no way responsible, and for which, until very recently, he has been able to do very little. They occur in persons, who, for reasons that we do not understand, have not the power of producing osteoblasts, and no matter how well the fragments may be adjusted, non-union will follow. The patient may be, and usually is, a healthy individual, for fractures usually occur in healthy people; he may not be suffering from syphilis or any constitutional disease, and may not be addicted to the use of alcohol, and yet be unable to produce new bone-cells. It is in this class of cases that we have so often failed to secure bony union by operation. It is utterly useless to apply a Lane's plate, for that hinders rather than promotes the production of osteoblasts. Wiring is equally inefficient. Fortunately, we are now able to secure bony union in practically all of these

cases by the use of the bone-graft. The graft is believed by some surgeons to have osteogenetic properties of its own, because instances are on record in which the bone-graft has been broken and afterward united. The writer does not understand how a strip of bone taken from one part of a patient's body can be expected to have osteogenetic properties when he has failed to produce osteoblasts in another. The presence of the graft undoubtedly stimulates osteogenesis in the original bone. We have been universally successful in this work in the University Hospital. Through defects in our technic we have sometimes failed to secure results by our first



Fig. 3. Skiagraph shows replaced trochanter in patient operated upon after using crutches two years.

operation, but have ultimately secured them in every instance. We have learned that grafts from the patient's own person are the best, and that grafts covered by periosteum act more quickly. While the part played by the periosteum has been greatly overestimated in the past, there is no doubt that the presence of periosteum on the graft aids osteogenesis. Whether the periosteum has real osteogenetic properties is still a disputed question.

There are three accepted methods of bone-grafting:

First, that of Buchanan, in which a piece of bone is removed from each of the two fragments, one long and the other short. The fragments are then transposed so that the long graft bridges

over the seat of fracture. This is the method the writer employs in most of his work. It is eminently satisfactory, and it can be done with the mallet and chisel better than either of the other methods. The grafts can be held in place by chromic catgut passed around the bone and tied over the graft, or by drilling a small hole transversely through each fragment, through which is passed a strand of kangaroo tendon, which is tied over the grafts. This is Albee's suggestion.

The second method, suggested by Murphy, consists in reaming out the medullary cavity in each fragment, and introducing the graft into these openings, so that it extends beyond the area of eburnated bone in both fragments. This skiagraph (No. 2) shows a case in which the first graft was placed in the medullary cavity, and resulted in failure because it did not extend beyond the eburnated bone in one of the fragments. A second transplant was applied by the method to be described later; and union is taking place, but for lack of time is not yet complete.



Fig. 4. Pott's fracture.

Fig. 5. Pott's fracture.

The remains of the original graft can be seen. The objections to this method are, that the transplant must be comparatively small and is liable to be broken when the patient moves his limb, and it is quite difficult to so adjust the transplant that it extends well beyond the eburnated bone in both fragments, and this is absolutely necessary because the eburnated bone has very little, if any, osteogenetic properties.

The third method of applying the bone-graft is the favorite method with most surgeons, but requires the electric saw to be performed properly. It is performed by, first, properly adjusting the two fragments; the periosteum should then be incised, and turned back so that it can be stitched over the graft after it has been placed in the groove. Then by means of an electric bone-saw with two parallel blades two grooves are cut in each fragment. These grooves should extend into the medulla, and beyond the hard-

ened bone in each fragment. The bone between the grooves is then severed at either end by a chisel, and removed, leaving a deep, smooth-sided gutter. A strip of bone is then removed from the patient's tibia with the same saw with the same adjustment, and placed in the gutter made in the fragments. Made in this manner, the graft fits accurately, and can be held in place by closing the soft parts snugly over it, or by Albee's method, without the necessity of introducing any unabsorbable material. The wound is then closed without drainage, and a plaster-of-Paris splint applied over the surgical dressings. Whenever practical, it is very desirable to extend the plaster splint beyond the two neighboring joints so as to prevent motion and strain upon the graft.

Operations for the relief of deformity and dis-

ability following fracture of the neck of the femur. The condition is almost invariably non-union from lack of proper adjustment of the fragments. A certain number of these patients can be secured a good, useful limb by operation. The patient must not be too old, and must be in good health, because the operation is a severe one and the patient will be confined to his bed for a number of weeks. It must be remembered that it is only the select few of these patients that can be operated upon with any hope of success.

This skiagraph (No. 3) was taken from a patient upon whom I operated after he had been obliged to use crutches for two years, and the result was a good, useful limb and the abandonment of the crutches. The joint was reached by a large U-shaped incision with its base above



Fig. 6.

Fig. 6. Pott's fracture.



Fig. 7.

Fig. 7. Showing astragalus directly under the tibia so that the body-weight falls upon it without causing eversion.

ability are very difficult, and no two of them are alike. While the results are often disappointing, they are frequently very gratifying to both patient and surgeon. When we undertake these operations we should make no promises of perfect results, for they are not to be expected, and the possibility of failure should be clearly stated. These patients are often willing, and sometimes anxious, to take the chances of improvement when the surgeon promises to do his best and offers hope of improvement. The principal care of the surgeon should be that he does no harm.

It is impossible to cover this whole subject in one paper, so I have selected a few cases to illustrate the possibilities of this work.

We all meet with patients suffering from dis-

the trochanter, and its apex downward, extending through the fascia lata to the muscles. This flap was turned up, and the great trochanter sawed off and turned up, permitting access to the joint from the front. The broken surfaces were then freshened, and the fragments fastened together by two steel nails. The third nail seen in the skiagraph was driven through the replaced trochanter to hold it in place.

Pott's fracture is a very common cause of deformity and disability which, fortunately, lends itself admirably to operative treatment. The two following photos (Nos. 4 and 5) were taken from a patient upon whom I operated many years ago. As you see, he had sustained a Pott's fracture, which had left him with a deformed foot,



so disabling him that he was unable to follow his trade as a plumber. An osteotomy was performed upon the tibia and fibula, the foot forced into a position of over-correction, and held there by a plaster splint. The result was that the patient was able to work at his trade very comfortably.

The next three skiagraphs were taken from a patient referred to me by Dr. Wallace, of St. Joseph, Mo. This patient was thrown out of a wagon in a runaway, and sustained a complicated

longitudinal incision was then made over the site of the fracture in the fibula. The fibula was broken by an osteotome, the lower fragment turned down, and the new bone chiselled out from between the tibia and the fibula. The foot was then inverted as far as was possible with the unaided use of the hands of the assistant and myself. The wounds were then closed, and a plaster splint applied. The result, as shown in this skiagraph (No. 7) taken the next day, was not satisfactory, because the astragalus was still too far out to receive the transmitted weight from the tibia properly. The foot remained at such a mechanical disadvantage that the tendency would have been for it to become more and more everted when the patient walked. The patient was anesthetized on the following day, the splint and most of the dressing removed, and heavy pressure applied over the outer side of the



Fig. 8 (above). Ulna broken into fragments, and the head of the humerus dislocated forward.

Fig. 9. Resulting deformity from fracture shown in Fig. 8.

Fig. 10. Result of sewing neighboring fascia over bony surface to prevent union between radius and ulna.

Pott's fracture, as shown in this skiagraph (No. 6). I first saw him about five weeks after the accident. Bony union had taken place, but the foot was so badly everted that the weight of the body transmitted through the tibia fell inside of the astragalus. A wedge-shaped piece of the soft, new bone was removed from between the fragments of the tibia through a longitudinal incision, and the lower fragment loosened. A

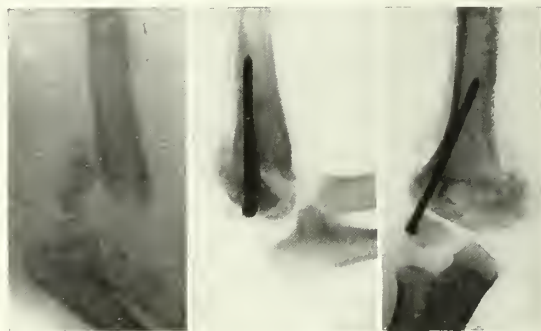


Fig. 11 (left). (Velma Horn.) Lateral oblique fracture before repair, six days after injury.

Fig. 12. Same case as Fig. 11. Two weeks after operation. Flexion from primary position  $20^{\circ}$ .

Fig. 13. Same case as Figs. 11 and 12. Three weeks after operation. Arm in voluntary extension.

foot and outer malleolus by means of an osteoclast, such as is used by orthopedists for breaking bones. The result was marked improvement, as shown in this skiagraph (No. 8). Although the picture shows that the astragalus is not as far in as nature intended it to be, the foot was decidedly inverted. This picture shows the astragalus directly under the tibia so that the body-weight can fall upon it without causing eversion. Some of the stitches were broken at the second operation, allowing some gaping of both wounds. These were replaced, and a plaster splint applied over moderate-sized surgical dressings with the foot in an over-corrected position. It should be noted that no foreign material was introduced to retain the fragments in place. When sufficient force has been applied to over-correct the deformity, nails or screws are not necessary, and they should always be avoided when it is pos-



sible. The convalescence was comparatively uneventful, and there was remarkably little pain. On account of the edematous condition of the tissues at the time of operation, and the severe contusion at both operations, primary union was not complete, and a small piece of the fibula became necrotic and was removed, but at no time was there a deep infection. The patient left the hospital in three weeks with both wounds nearly healed. I have not seen him since he left the city, but in less than two months after the operation he reported to me that he was delighted with the result, because he had thrown away his crutches and could walk without a limp or pain. He stated that the motion in the joint was almost normal. The difficulty in correcting the deformity in this case was due to new-formed bone and other tissues, and it is very evident that a lesser degree of pressure applied shortly after the accident would have secured as good, and possibly a better, result. The writer would suggest that the osteoclast be used in recent cases of Pott's fracture, applying a sufficient force to place the foot in a position of over-correction.

The next skiagraph (No. 9) was taken from a patient who came to the University Hospital because of ankylosis of the elbow-joint following a fracture of the condyles occurring nine months previously. The loss of motion was due to the bridge of new bone in front of the joint, which can be seen in the picture. This bridge of bone was chiselled away by Dr. A. A. Law, of our staff, and the neighboring fascia brought over the raw bony surface to prevent a new formation of bone. The immediate result after the operation was very satisfactory, for motion was almost completely restored. The next picture (No. 10) was taken from the same patient who returned fourteen months later, complaining of increasing loss of motion in the joint. As can be seen, a large growth of bone had formed on the anterior surface of the humerus. Dr. Law again operated, removing the projecting bone, and covering the raw surface with a piece of periosteum taken from the patient's tibia. The immediate result was quite satisfactory, but it is too soon to know what the final result will be. This case illustrates one of our greatest difficulties in this work. There is a persistent tendency to the re-formation of new bone, especially between such bones as those in the forearm. Our only hope seems to be in the use of periosteum or firm fascia, like the fascia lata, to act as a limiting membrane to keep the osteoblasts within bounds. At the second operation in this last case the new

bone was so deeply buried in newly formed connective tissue that it was difficult to reach it, showing that a transplanted fascia with a function to perform has a tendency to grow and develop.

The next four pictures were taken from a lad of fifteen years, a patient of my associate, Dr. Arthur C. Strachauer, who was injured in an explosion. The first skiagraph (No. 11) shows the ulna broken into a number of fragments, and the head of the radius dislocated forward. The next picture (No. 12) shows the resulting deformity, and a firm bony union between the radius and ulna. When first seen, six months after the accident, pronation and supination were absent; there was very limited flexion and extension, and he could not reach his nose or mouth. Dr. Strachauer operated on the patient at the Northwestern Hospital. An incision was made over the head of the radius with the hope of reducing it; but it was found immovably fixed and osteoporotic from disuse, and was excised. An incision was made over the outer side of the ulna, the bone broken with an osteotome, the ends turned out, and the bony deposit between the radius and ulna removed with chisel and rongeur. A Lane's plate was then applied to the ulna at the seat of fracture to maintain reduction, and to hold the ulna away from the radius. The neighboring fascia was sewed over the raw bony surface to prevent union between the radius and ulna. The result is shown in the next two pictures (Nos. 13 and 14). Six weeks after the operation the patient had complete flexion and extension, with rotation of from one-half to two-thirds of normal; and he could touch the back of his neck and the top of his head, and could reach his nose and mouth. On account of the persistent tendency to the re-formation of bone between the radius and ulna in these cases this patient will doubtless lose some of his rotation, but even then he will be in a much better condition than he was before the operation.

The next four skiagraphs were taken from a girl of seven years, also Dr. Strachauer's patient, who was injured by a fall. As you will see (Nos. 15 and 16), there was posterior and lateral dislocation of the radius and ulna, and fracture of the external condyle of the humerus with wide separation of the fragments. Repeated efforts had been made at reduction, but had failed so an incision was made over the posterior aspect of the joint, the orbicular ligament repaired with chromic catgut, and the condyle fastened to the shaft of the humerus with a steel nail, and the

wound closed in the usual manner. This skiagraph (No. 17) was taken two weeks after the operation with the arm in voluntary flexion. The next (No. 18) was taken three weeks after operation with the arm in voluntary extension. Six weeks after the operation all motions of the elbow and forearm were perfect. This will be a permanent result because the operation was performed soon after the accident.

The illustrations shown demonstrate how difficult these operations are when delayed, and how

much easier they are, and how much better the results, when the operation is done soon after the accident before Nature has undertaken repair with the parts in faulty position, and make a strong plea for early operation.

In every case of fracture of the elbow, and in every case of Pott's fracture when reduction cannot be accomplished by manipulation, operation should be resorted to before new bone has commenced to form.

## FOCAL INFECTIONS\*

By C. S. O'TOOLE, M. D.

WATERTOWN, SOUTH DAKOTA

Some type of infection is to be found almost everywhere, and a certain number of micro-organisms are constantly gaining admission into the tissues. In health, nature's method of opposing destruction takes care of the intrusion; the bacteria are destroyed, and health and harmony prevail. The body-secretions,—gastric juice, acids of the muscular tissue, mucous coating of the membranes, and leucocytes,—all go toward making up that which is called bodily resistance. The principal avenues of entrance of infection into the body are, the respiratory, the gastro-intestinal, and the genito-urinary tracts, and surface abrasions. Here, if in sufficient number and virulence, the bacteria overcome nature's resistance, multiply and develop, and produce toxins, their absorption rapidly producing a general systemic infection. But this is not usually so, for, more frequently, nature is able to surround, wall off, and hold in abeyance the active infection until localization is well established, when the usual methods of nature, assisted by treatment, terminate the attack. When there is infection in the blood, bacteria may, for various reasons, be attracted to a certain focus, forming an abscess. In this case the bacteria will often disappear from the blood, all infection having found a focal outlet. But this does not always occur, and when it does not the ultimate prognosis will depend on the primary avenue of entrance of the infecting agent, and upon its virulence and the susceptibility of the various parts of the body.

All tissues of the body are more or less liable to infection, the focal accumulation of which is

largely dependent upon the special susceptibility of some structures and also a predilection for certain tissues on the part of the many micro-organisms. More recently there has been added to this, the interesting observation of Dr. E. C. Rosenow, of the Memorial Institute for Infectious Diseases, Chicago, that bacteria confined in localized areas acquire a definite affinity for certain forms of tissue which they will seek out through the blood- and lymph-channels or continuity of tissue, and there set up new foci. The doctor is doing a great deal of experimental work to prove that such an acquired affinity does exist, and he cites many interesting cases in support of this.

From point of activity, the invading infection might be classified as acute, chronic, and fulminating; and the accompanying disturbance of metabolism depends upon the nature and toxicity of the products of the infecting agent in its development or disintegration. The effect of these products upon the organism, and the ability of the body to neutralize or destroy them, determine the type of active infection. An established focal infection in any organ or part of the body is to be regarded, not as an entity in itself and treated as such, but as more likely the result of some preceding pathological process that may have existed for months or even years, or may occur as a complication with symptoms so prominent as to render most obscure the real seat of the primary infection.

Among the more important focal infections are empyema, cholecystitis, pyelonephritis, appendicitis, and many others. The spread of infection from a focal point is well shown in the development of empyema by infection from a

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variety of sources, as staphylococcic or streptococcic affections of the throat or head or, after appendicitis, purulent inflammation of the tubes or uterus, hemorrhoidal operations, and following infectious diseases. Empyema has occurred after or with enterocolitis in children, which is interesting, for we know pneumonia is a very common complication of diarrhea, sometimes leaving it a question whether the empyema is directly from the infected bowel through the lymph- or blood-channels, or secondary to the complication, pneumonia.

Inter-lobular abscesses of the lung or purulent fluids in the pleural cavity, confined by adhesions, may be difficult to determine, owing to adjoining or overlying collections of clear uninfected fluid, which may be easily reached by the aspirating-needle, while the real seat of infection is more deeply seated and may be overlooked.

Infections of the gall-bladder have followed typhoid fever and other infectious diseases, or may result from some primary focal infection, such as appendicitis, ulcer of the stomach or duodenum, or centers of infection in any part of the body from which micro-organisms can gain entrance into the general circulation. Metastatic infections from the gall-bladder to other organs and the bones and joints, and also to the pancreas by direct extension along the mucous membrane of the ducts, is a matter to which surgeons and pathologists are directing a great deal of attention. The older question, as to whether or not the presence of stones in the gall-bladder is necessary to the production of cholecystitis being permanently settled, since it is only in the minority of actively inflamed gall-bladders that stones are found, it is a safe statement that, in a great majority of cases, infection of the gall-bladder precedes rather than follows the formation of gall-stones. Just how much the development of gall-stones is due to the presence of infectious micro-organisms and their inflammatory processes along the bile-ducts, and, how much is due to the obstruction of the bile-ducts by the products of inflammation and inspissated bile, are interesting questions, but are not within the scope of this paper.

The bacilli most frequently found in affections of the kidney are the colon bacillus, the staphylococcus, and *b. pyocyaneus*. Renal infection is from the blood-stream, lymphatics, and ureter, the last-named being perhaps more destructive in character, owing to the frequency of occlusion of the lumen with loss of drainage. Pure pyelitis is rare, most cases being rather a pyelo-

nephritis. The amount of kidney tissue involved is roughly indicated by the degree of albuminuria, and is much more dependable in distinguishing between an inflammatory invasion of the upper and lower tract than to rely too much upon the finding of casts, as in many cases of tissue-destruction and suppuration casts are not found.

Bacteriology of the appendix is playing a leading rôle in placing appendicitis as one of the diseases of known etiology. The part played by the presence of foreign materials is receiving less consideration, as they are seldom found. Even fecal concretions seem more likely to be formed within the tube itself than to gain access from the cecum. Appendicitis is distinctly an infectious disease, and its relation to micro-organisms in distant foci is receiving much attention. The most abundant micro-organisms found in appendicitis are the colon bacilli and, next in frequency, the streptococci and the staphylococci, most cases being a mixed infection. It has been pointed out by Dr. Rosenow, who is doing some excellent research work, that the abundant lymphoid tissue in the appendix serves to render this particular part susceptible to infections through the blood- and lymph-channels from various other lymphoid structures throughout the organism, notably the tonsil. And, again, he states that bacteria acquire a strong affinity for tissues similar in structure to that in which they develop; and by virtue of natural selection bacteria from the tonsil tissue passing downward through the digestive tract, seek lodgment in the appendix, where there is much more lymphoid tissue than in any other portion of the intestinal canal.

Secondary focal infections are nowhere better illustrated than in tuberculosis of bone, the primary focus being from some tuberculous tissue elsewhere in the body, the infection being carried by the blood-stream and deposited by the nutrient vessels in the synovial membrane, healthy bone not being subject to tuberculous infection primarily.

Looking back over the past, and reviewing what the microscope has brought to our understanding of disease, replacing doubt and uncertainty with so much of definite knowledge and the light of real fact, and, realizing the vastness of the world of knowledge yet unrevealed, we are impressed more and more that the last chapter on etiology and pathology of disease of the human organism has not yet been written.

(FOR DISCUSSION see p 15.)



## FOCAL INFECTION\*

BY L. G. HILL, M. D.

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The great importance which chronic foci of infection take in the etiology of systemic diseases is coming to be much more generally recognized. It is now understood that the different forms of arthritis, cardiovascular degenerations, chronic Bright's disease, and many forms of nephritis, frequently owe their origin to chronic, usually latent, foci of infection. There are also other diseases of obscure origin of which chronic infection is now being suspected as the possible cause.

Chronic focal infection may be located in any portion of the body. There are, however, certain structures which are more frequently affected. These are structures which possess recesses, or pockets, and which communicate with the external world. There are, however, some structures that do not have these characteristics, and still may be the seat of focal infection, with all the train of symptoms of chronic toxemia and pathological changes consequent thereon.

The most frequent sites of focal infection may be divided into groups as follows:

1. Recesses or terminal pockets, as the meibomian glands; lacrimal glands, nasal accessory sinuses, and mastoid cells; tonsils and adenoids; salivary glands and ducts; gall-bladder and ducts; pancreas and ducts; Fallopian tubes; and sweat and sebaceous glands.

2. Tubular structures or ducts,—the gastro-intestinal tract and the tear duct.

3. Glandular tissue,—the lymphatic glands, lingual tonsil, ductless glands, the thyroid, thymus and hypophysis.

4. Serous membranes,—the pleura, the synovial membrane and dura.

5. Pathological tissues,—cavities of the teeth, alveolar necrosis and death of pulp, infection about the nails and hair follicles, and recession of the gums, as in pyorrhea.

It will be the purpose of this paper to discuss the chronic infection of the mouth, nose, ear, throat, and teeth only.

Before discussing the subject of infection, the question of body resistance and immunity, or the normal condition of the body, should be considered.

Perfect health is described as being that state

of the organism in which all functions of the body are carried on without interference, and the weight of the body is normal and remains so. Exposure to infection and other forms of disease do not readily develop under this condition. Health is further characterized by a normal state of the mind where there is neither worry nor anger. With these qualifications one has the proper energy to work, and the individual enjoys life. Some of the commonest factors that undermine health are chronic diseases and chronic focal infection, especially infections of the pyogenic organisms. These reduce the vitality, and lessen the resistance to acute disease. Excessive use of stimulants, over-eating, and over-work contribute toward the loss of vitality and resistance of the body.

Immunity to any infection is said to be due to the inability of the infecting agent to grow in the animal body. Immunity may be normal or acquired. This immunity is absent to a greater or less degree in cases of chronic focal infection, and only the best of attention to all functions of the body, and the use of vaccines and other dietetic, medical, and hygienic measures, will prevent acute outbreaks. It therefore follows that chronic focal infection must be completely eradicated in order to obtain a cure or prevent the occurrence of acute disease.

The various organisms that are most frequently concerned in the causation of chronic focal infection are staphylococci, streptococci, pneumococcus and tubercular bacillus.

The patient with chronic focal infection may manifest no other symptoms than a general inability to do good work, saying that he does not feel well. Such an individual is subject to frequent acute attacks of laryngitis, bronchitis, and tonsillitis, with all the possible local, as well as general, complications. The involvement of the accessory sinuses, middle ear, and mastoid, gastro-intestinal tract, and blood, with the typical rheumatic affections, is one of the common sequels well known to you all.

The local diagnosis of focal infection consists in locating the focal point of infection by the presence of pus, be it ever so small.

The teeth should be examined by a competent dentist frequently. Death of pulp, apical infections, carious cavities of the teeth with alveolar necrosis and fistulas are among the commonest

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forms of infection in teeth; and pyorrhea is looked upon as a specific cause of focal infection. It is advisable to employ the x-ray in the diagnosis of some of the hidden conditions of the alveolar processes. A markedly coated tongue and diffused chronic stomatitis are frequently found with diseased teeth in persons with no knowledge of oral hygiene. In these cases there will frequently be found chronic infection of the salivary glands.

It is very gratifying to notice the tendency toward a closer relationship between the dentist and the physician, and to see that physicians in general are realizing the great importance of the relation of the teeth to general health. Dr. Billings has called attention to the fact that diseased teeth can do much to produce either chronic toxemia, with its train of symptoms, or some distant point of infection which he calls an embolic process. It has been demonstrated that from one or more diseased teeth there may pass into the blood-stream micro-organisms which find lodgment in the gall-bladder and produce cholecystitis, or even into the stomach and cause ulcer of the stomach. It is quite necessary to know that the teeth are carefully examined before a patient is referred to the internist for treatment. The close relationship between the laryngologist and the dentist is frequently demonstrated by disease of the antrum of Highmore; and it is in this region that these two professions should work in harmony.

We are all more or less familiar with the method of detecting pus from the sinuses by nasal examination and suction. The ethmoid and sphenoid sinuses are frequently seats of chronic infection which is sometimes overlooked, and, when neglected, often leads to conditions of lowered vitality, chronic headache, and general debility. These conditions are often improperly treated as chronic stomach trouble and kindred ailments.

The nasopharynx, in which the adenoids are located and are subject to retentions of purulent secretions within their folds and pockets, is one of the most frequent seats of focal infection in children. The child suffering from absorption of infectious material from this source, with recurrent attacks of otitis media and a general condition of malnutrition, is well known to us all. This condition can be examined and diagnosed by the use of the pharyngoscope or by the more direct method of exposing the post-nasal space by means of a small rubber catheter, passed through the nostrils and out of the mouth and

drawn tense so that a direct view may be had. Focal infection of the tonsils is easily diagnosed by pressure against the anterior pillar when liquid pus and caseous masses are expressed. The size of the tonsil has very little to do with the amount of infection that may be within the gland, and we all know that a small tonsil may be more injurious than a large one. Dr. Shambaugh believes that the general practitioner, as well as the specialist, has not, as a rule, fully appreciated the importance of the relation existing between the infections, acute as well as latent, of the faucial tonsils and certain systemic conditions, and he believes that in general the importance of this relation has been more fully appreciated by the internist than it has by the specialist. This perhaps is to be expected, because the consulting internist is the one to whom such cases are referred. The internist is, moreover, familiar with systemic conditions caused by other foci of infection,—such as abrasions of the gums, chronic appendicitis, infection of the genital tract, cholecystitis, etc. Dr. Billings says there can be no other reason for the prevalence of rheumatism found in childhood than the frequency of local infections in the nose and throat. Quite as frequently children have endocarditis without other symptoms of rheumatic infection, which has its source in the throat. Any one who has noticed the difference in the physical and mental makeup of a child before and after the removal of large amounts of lymphoid tissue in the throat, must be convinced that the change is due, not only to a better air-space, but also to the removal of a constant, even though slight, systemic infection.

As regards the appearance of the faucial tonsil which is a focus of systemic infection, it is quite clear that the size of the tonsil is no index of the menace this structure may be to the individual. A large tonsil is often chronically diseased or is the seat of repeated violent, acute infections, and therefore a constant menace as a focus for systemic infection. On the other hand, one sees a great many very large tonsils where the whole appearance is one of simple hypertrophy, and where there is no history of attacks of acute tonsillitis. The danger from tonsils of this type is, as a rule, very slight when compared with the danger from a small tonsil which is subject to repeated acute infections. At the same time children with enormous, apparently harmless, faucial tonsils often do appear illnourished and generally below par. Very frequently, too, in such cases the removal of the tonsils

results in such an immediate and astonishing improvement in general health, that it can hardly be accounted for except on the assumption that these enlarged, harmless appearing tonsils often contain foci for a mild systemic infection.

Another type of faucial tonsil that should be regarded as a frequent source of systemic infection, is the tonsil stub remaining after partial removal or cauterization. In these cases the surface scar seems to predispose to retention of infection in the pockets of the remaining stub, causing repeated attacks of acute tonsillitis, as well as systemic infection.

Chronic focal infection of the larynx, trachea, and bronchi is sometimes met with in aged people, which condition is frequently secondary to sinus infection.

There may be so little evidence of pus in chronic suppuration of the ear as to be barely noticeable, yet the mastoid may be infected, causing chronic intoxication.

The treatment of focal infection is, of course, obvious. It consists in thoroughly eliminating all focal infections, either by drainage or enucleation of the focal point of infection. We no longer expect to cure chronic infection of the ethmoid by snaring off a few polyps nor relieve recurrent quinsy by slicing off a portion of the tonsil. The point of infection must be reached and thoroughly treated in a businesslike manner. By far the most prolific seat of infection in the human body is the tonsil and adenoid. Dr. Joseph Beck is authority for the statement that about seventy per cent of focal infections arise from these organs, and hence the importance of attention to these structures.

It has been definitely proven that the tonsil and adenoid tissue has the greatest power of retaining infectious material and that the lymphatic distribution to and from these structures is very great. Everyone who has had any considerable experience with the removal of tonsils and adenoids has noted the marked gain in weight and general well-being with the disappearance of local, as well as the general condition, in the majority of instances, following complete tonsillectomy and adenectomy. Not only does the general condition improve, but even chronic suppurative otitis media and chronic purulent sinusitis clear up markedly, following the removal of tonsils and adenoids. Not alone will a suppurative ear or nasal condition be improved by the removal of the tonsils and adenoids, but a suppuration quite distant from the tonsil will be markedly improved or cured. This is brought about partly

by increasing the resistance of the individual, thus enabling him to overcome other focal points of infection.

In addition to removing the structures containing the focal point of infection, we may obtain the predominating organisms in culture, and make therefrom an autogenous vaccine, which is employed for a considerable period, thus producing neutralization of the toxins and eliminating the tendency to infection.

It seems, therefore, to be a well-established fact that a very large percentage of human ailments, both acute and chronic, have for their cause, either remote or direct, some focus of infection, which, if located and removed, places the patient on the high road to recovery, while, if this focus of infection is not removed, the patient cannot be entirely cured, although the entire armament of medication be exhausted upon him. When we know that the many forms of rheumatism which attack the various parts of the body and cause so much suffering, and which were formerly said to be caused by exposure and that bug-a-boo of dreaded night air and dampness, are largely due to some primary focal infection, we are more than justified in advising the removal of the source of such infection, in order that the patient may be relieved and cured; and when we see such conditions as recurrent iritis, which have withstood all other lines of treatment, completely relieved and cured by the removal of infected tonsils, we again see the importance of this subject, to say nothing of the many cases of puny, undeveloped, and malformed children suffering from repeated attacks of acute otitis media, arrested development, and stupidity, due to absorption of infection from accessory sinuses, adenoids, and tonsils, who are placed on the high road to health and increased physical and mental powers by the complete eradication of these points of infection.

The rhinologist and laryngologist has been criticised for his enthusiastic and persistent activity in claiming that many of the ills to which human flesh is heir, come from these foci of infection; but one has only to follow the latest teachings and practice of men foremost in these lines of work, to realize that he has not been over-enthusiastic, but, on the contrary, has been altogether too diffident in his advocacy of this line of treatment. When such an authority as Dr. Shambaugh is seen to spend weeks of careful, minute, and painstaking labor in locating and removing a slight focus of infection in the accessory sinus of a patient rendered helpless by rheumatoid ar-



thrititis, and asserts, as his opinion, that all this patient's helplessness and suffering is the direct cause of some obscure focus of infection, which, if removed during its incipency, would have changed a life of helplessness suffering to one of normal and healthy activity, we are led to believe that we have been altogether too lax along this line, and inclined to treat such cases by antiquated methods without results rather than by careful and persistent effort, insisting upon locating the cause of such ailments and advising their complete and early eradication.

#### DISCUSSION OF THE TWO PRECEDING PAPERS

Dr. H. J. G. KOOPS (Scotland): Since Dr. O'Toole has told us something about predilection of site in various bacterial infections that we may come across in the human organism, styling them "focal" infections, I will say that I do not know why the tubercle bacillus has a predilection for certain parts or tissues of the human body and why the colon bacillus does the same thing with other parts. Why in assimilation and in the processes of metabolism certain cells take up certain substances from the blood by what we call "processes of selection," we do not know, but we know they do so. We may never find out why certain of the bacteria locate in certain definite places, but we simply know that they do so.

In this connection, I am reminded of a case which came under my observation a few years ago, that made me wonder and question why these foci, i.e., the deposits of bacteria, all occurred near the outside, or the skin, surface. It was a case of post-puerperal infection, a general bacteremia. This woman developed forty or fifty different foci of infection with resultant abscesses in the skin and joints. There were several joints involved,—the right shoulder, two of the fingers, and the ankles. She was ill for somewhat like five or six weeks with this bacteremia, and the suppurative processes following it. I had to open four or five abscesses on each arm, and a like number on the legs. She developed an immense abscess on the back, on the shoulders and in various other places. But it seemed as though every parenchymatous organ escaped infection. There was no evidence of any vital organ being involved. The heart remained in perfect condition, the kidneys worked perfectly, there was no involvement of the liver or of any other parenchymatous organ. And why? I do not know. The woman got perfectly well with the exception of some ankylosis.

Two years later she had another baby, although she was hardly able to walk from the result of the preceding joint involvement.

The predilection of these bacteria in that case for the subcutaneous fascia or the defensive action which had been developed in other parts of the body were the factors that undoubtedly saved this woman's life.

That certain bacteria locate by preference in certain parts of the body, or that their action is especially directed against certain tissues, there can be no doubt, but why they do it is, so far as I know, an open question.

It is important to know, however, that the bacteria that are especially apt to produce certain foci of

infection and what their action on other parts of the body is liable to be.

Dr. E. D. PUTNAM (Sioux Falls): I want to emphasize every point the doctor has made, and also a point in Dr. O'Toole's paper.

There are phenomena about focal infections in the line of work we do, which strike me as peculiar. For instance, take a diseased ethmoid. Perhaps the only symptom that the patient will complain of is nasal obstruction due to polypi. The next patient we see with a diseased ethmoid will perhaps be an asthmatic, and the next will have severe headaches, and then perhaps the next one will have lowered vision. Upon examination of the region, even by the help of the x-ray, which by the way is very valuable in all cases that I have known anything of, we will find the same condition with these various distinct phenomena of causes and conditions. Even a lingering low-grade iritis has not cleared up until the ethmoid has been operated upon and thoroughly cleaned out.

I see that the habit is rapidly growing and becoming very common for us all,—the internists, the general men, and the men doing special work, including the surgeons,—to say to the patient very definitely that his rheumatism, for instance, is due to a diseased tonsil or perhaps to a diseased nasal accessory sinus; and after operation we see some very brilliant results, but we do not see 100 per cent of brilliant results, and for that reason we should be just a little guarded in our prognosis of these cases, because the patients may go through the painful and expensive ordeal of having a tonsillectomy done or a sinus operated upon and not get complete relief from their rheumatism.

Dr. Billings is throwing a little of the responsibility upon the man by whom the patient is sent for an operation, who says to the patient, distinctly and definitely, "that is the cause of your disease, and when the doctor removes your tonsils or operates upon your sinus you will be well."

I just heard of a tonsil case that we had several months ago. Very soon afterward we received a letter saying that the patient was having just as much trouble as before. This patient, by the way, was complaining, not only of sore throat, but also of rheumatism, of pains in the joints, I will say. We wrote to the doctor, and asked to see the patient again, stating that we could not believe that there was any tonsil remaining in that particular case. We saw the patient, and saw a good, well-healed throat. This patient was put upon vaccines, which were administered two or three times a week for five weeks, I was told just today, and the final report is, that the case is a cured case. I presume in this particular instance the vaccines are to be credited for the work. The vaccines were autogenous vaccines, made from the tissues below the tonsil, right at the base of the tongue, where we sometimes wonder if we have not left some tonsil tissue after the operation. (Applause.)

Dr. J. G. PARSONS (Sioux Falls): By way of emphasis I wish to lay stress upon the great facilities that the human animal has for acquiring infections in his upper air-passages, which, it seems to me, we have failed to appreciate as much as we ought.

There is no other place in the whole organism where there is such facility for the collecting and filling up of infection as there is in the upper air-passages, and particularly in the accessory sinuses of the nose which lead from them. When you stop to consider that there is a labyrinthine network extending from the nasal cavities, each little chamber connecting with its neighbor by means of a very small opening, and that in any acute infection of the nasal cavity, in the much-despised but very common cold, due in most instances to an infection with the pneumococcus, the micrococcus catarrhalis, and the staphylococcus, and the streptococcus, drainage is an exceedingly difficult thing to take place or secure, and when these communicating sinuses have been infected, it is really a wonderful job on the part of nature to get rid of that infection and not leave some sort of a focus behind.

I believe we ought to take much more seriously these nasal infections, these so-called simple colds, these common colds, than we do at the present time. I think it is relatively an uncommon thing for us to make a bacteriological examination of these secretions. I think if we would make a practice of doing that more frequently, and consider the amount of pneumococci and streptococci with which we have to deal, we would have a good deal more respect for this apparently inoffensive sort of an infection that seems to be, like the poor, always with us, and which, like mumps, measles, and whooping cough, in the opinion of the laity we have all got to have.

Not one of the least important things that Rosenow developed, was the fact of the transmutation of the pneumococcus into the streptococcus form, in which phase or state many of the arthritides are found to be involved. The original pneumococcus, which in the lower part of the respiratory tract would give us typical pneumonia, is perhaps most frequently the infecting agent in diseases of the accessory sinuses, and Rosenow has shown that under certain anaërobic conditions, partial or complete, this pneumococcus becomes transmuted into the streptococcus, such as you find, not only in the joints of the movable parts of the skeleton, but very frequently in the joints about the spinal column, so that, as has been brought out by some other investigators, many of the cases of backache which are of obscure origin are really local forms of arthritis in some of the articulations of the spine, particularly in the intercostal articulations with the vertebræ.

Such being the case, and such being the possibilities of the development of serious infections, leaving out of consideration the fact that it is a well-established fact that many of our heart-lesions, such as endocarditis, are directly traceable to these infections, we ought all of us to take these things more seriously, and the man who has to deal with these things, more than anybody else, is not the specialist, but the general practitioner, who looks upon a cold as something that is going to take about so long anyway, and that is about all there is to it.

I have very frequently, in discussing papers before this Association, made an appeal for the use of the head-mirror and the nasal speculum in investigating these conditions. I believe that we ought to always make it a practice of looking and seeing what we have got to deal with, instead of taking the symptomatol-

ogy and the matter of pulse and temperature as our principal guides in the determination of the pathological conditions with which we have to deal.

The possibility of the development of these involvements of the accessory sinuses is so very grave, and they are so very common, that we have no excuse for letting these things go by unnoticed as frequently as we do; and this is the main point that I would like to make, that it is the duty of the general practitioner to have his head-mirror and nasal speculum and tongue-depressor, and to use them and see what he has to deal with so that he may be able to govern himself accordingly. (Applause.)

DR. L. N. GROSVENOR (Huron): Something has been grating on my nerves ever since I came to this town, thirty-six hours ago. Some of the boys here, —Adams, Ball, McCauley, and others of us who went to Rush, and who were classmates of mine,—will remember how one day, down in Prof. Belfield's clinic, when I got on the front seat in the amphitheater, and Belfield was showing cases of his work, and he turned on me and began asking me questions about a case. In my answer I used a word which was customary in his clinics. I used the word "gonococci," and, like a flash, he jumped at me. "What is that? What is that?" he said. "Pronounce it right." So I am going to say to you people "Pronounce it right, —gonocoxi." The second "c" is soft.

Now, in regard to these focal infections: A year ago I read a paper before you on the "Pathological Reasons for the Removal of the Tonsils." I did not go into the bacteriology at all; but David J. Davis, of Chicago, has worked out the bacteriology of the actinomycetes-like granules that I had so often found in tonsils. He has shown that "they are in no way related to true actinomycetes, but consist of fusiform bacilli, streptococci, and spirilla."

A question has come to me this afternoon while Dr. Hill and Dr. O'Toole were talking about this, When are you going to take out these tonsils? That is a question that comes to us rhinologists and laryngologists. When are you going to take them out? A child comes in with tonsillitis, typical streptococcus viridans, which Rosenow has described—the fiercest sort of tonsillitis, with the glands tremendously enlarged. Are you going to take the tonsils out in that condition when there is that severe inflammation, with high fever and prostration? You say, let us wait until the patient gets over the acute infection. I would. I would not want to take them out while they were acutely inflamed. But before the patients get well over that they come down with arthritis—a streptococcic arthritis, as Rosenow calls it. Are you going to take the tonsils out while the patients are in that condition? Before they get well over that, they are having their heart-lesions. Are you going to take them out then? Dr. Hill, when are you going to take them out?

DR. N. K. HOPKINS (Arlington): This seems to be a specialist's paper. Although I am not a specialist, but am one who is supposed to refer my cases to them, I will speak on this subject.

There are twenty-five or thirty classes of specialists connected with the medical profession, but I think there is one class of specialists we neglect, and



that is the dentist. I am very glad Dr. Hill brought out the dental side of the question. If we find a case that has a pus cavity which will discharge anywhere from a dram to two ounces of pus during twenty-four hours, if it was not in the mouth, we would rush to the surgeon and say, "Operate." But when we have multiple foci around the teeth which are discharging anywhere from one dram to two or three ounces of pus into the intestinal canal every twenty-four hours, we sometimes wonder why our cases do not get well when we put them on different kinds of medical treatment.

I have one case to illustrate the importance of referring a lot of our cases to the dentist. A woman came to me with a sore on her tongue, and wanted treatment. I used the tongue-depressor and the head-mirror, which Dr. Parsons spoke of, but in looking into the mouth I could not help seeing the terrible condition of her teeth. I told her I did not think she would ever be permanently well until she visited a dentist. I have not seen her since. That was six weeks ago. About two weeks ago I was in a dentist's office and met her husband. I said, "What are you doing here?" "Why," he said, "your prescription for my wife was so good that I thought I would try it myself. In less than two weeks after she had had her teeth cleaned, as you prescribed, she gained five pounds in weight, and feels better than she ever has in her life."

DR. O'TOOLE (closing the discussion on his part): I think when we consider that there are very many diseases, almost an innumerable number, for which infection in some form is directly responsible, this subject becomes a most interesting one, and the disease and the destruction resulting from the various focal infections places the subject at once in a position worthy of the careful consideration of every practicing physician. Much of our present understanding of infection is comparatively new, and we may rea-

sonably expect investigations of the near future to disclose a great deal that will be invaluable.

DR. HILL (closing the discussion on his part): I have nothing more to add to what has already been said, except that I want to thank the gentlemen very kindly for their splendid discussion of this increasingly important subject.

Dr. Grosvenor asked when we are going to operate on these cases. We operate on them whenever they present.

The point which Dr. Parsons has again emphasized is well taken. I am always glad to hear Dr. Parsons mention the use of the head-mirror. The point is a good one, and I would like to add my voice to the emphasis he makes of the more common use of the head-mirror. When you find a patient complaining of headache, do not take it for granted that he has a simple cold. He may have a serious infection of the sinuses; and, if you will go up in there with your light and clean it out, and find pus trickling down, you will know that that patient needs some attention further than a prescription of medicine to head off a cold.

I would like to thank Dr. Grosvenor again for setting us right on the pronunciation.

One thing that impressed me recently in visiting some of the leading clinics was the great amount of time spent by the best men in examining their patients. We do not spend time enough in examining our patients. When we go to the city, and see busy men spending half a day or longer examining a clinical case, going into the most minute details in order to arrive at a correct diagnosis, we should be ashamed when we realize how careless we are in attempting to arrive at a diagnosis. The best men—and that is the reason they are the best men—spend a great deal of time and take minute pains in diagnosing these cases.

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## DR. ARTHUR W. DUNNING

The editor of THE JOURNAL-LANCET records with grief and regret the death of Dr. Arthur W. Dunning in St. Paul on December 21st from heart disease. Dr. Dunning was born at Fond du Lac, Wisconsin, in 1860, and graduated from the Medical Department of the Illinois University in 1885; and, with the exception of two years of his medical life, his work was in St. Paul.

Dr. Dunning was one of our well-known neurologists, and enjoyed a very select and exclusive practice. At the time of his death he was president of the Minnesota Academy of Medicine. The success of this medical society has been largely due to the many years of efficient service as secretary given by Dr. Dunning. He was also a member of the Minnesota Neurological Society, and belonged to the Ramsey County Medical Society, the Minnesota State Medical Association, and the American Medical Association.

Dr. Dunning was a man rather retiring in his nature, quiet, and unassuming, but for that he was all the more dear to his friends and patients. Dr. Dunning always took a very active part in church work; and for anything that was good that he could do he was ready with his time and efforts.

## MEDICAL EDUCATION IN CHINA

The Rockefeller Foundation organized the China medical commission early in 1914, which consisted of Harry Pratt Judson, President of Chicago University; Roger S. Greene, United States Consul-General at Hankow; and Dr. Francis W. Peabody, of the Harvard Medical School and Peter Bent Brigham Hospital. The commission met in Peking in the spring of 1914, and spent four months in inspecting existing medical schools, hospitals, and dispensaries in China, and conferring with missionaries, who are very generally medical men.

The commission's report led to the establishment of the China Medical Board of the Rockefeller Foundation, and this Board will carry out the recommendations in the Rockefeller report. Dr. Wallace Butterick, executive secretary of the General Education Board, was appointed director, and Roger S. Greene resident director in China. The work of the Board will be made with the fullest possible utilization of existing institutions and equipment, and with the most cordial co-operation with the missionary boards and other agencies which have already carried on medical work in China.

It is planned to send from this country the best qualified technicians in the various branches of medicine to lecture on their respective subjects at a central school, and to require every medical practitioner on foreign pay within the chosen territory to spend at least three months of every year at this school. It is also planned to equip every hospital with at least two qualified practitioners and a corps of trained nurses and with all necessary surgical appliances for scientific work and proper sanitation.

If the work of the Rockefeller Foundation is carried out as already planned, China is expected to have the best body of practicing physicians on earth. This is a remarkable contract considering what China is, how far behind it is in all sorts of facilities, but also from the fact that it contains the largest number of cheap laborers in the world. The Chinese themselves will be unable, particularly in any of the interior provinces, to attain this high standard in medical life; and, if assistance is given, it must be given by the men of wealth in the large commercial centers in China. For instance, it is said that the average laborer in China works for from five to six cents a day. Extraordinary laborers, who accomplish almost unheard of feats, such as towing of vessels and traversing three or four hundred miles of country, receive the sum of eighty cents, out

of which they must provide their own rice. To show, also, the cheapness of labor, it is said that a fan, made in approved fashion and by a reasonably skilled workman, sells for a cent and a half. Out of that the laborer is paid, the dealer gets his share, and the commission man takes his quota.

If China is to be revolutionized, it means increased cost of living, and the beginning of an export trade that would probably produce starvation through large areas of the country. If China ever opens up to its fullest possibilities and stands on a par with other countries, it will take years to create a balance which is safe for the population; but, with the millions behind the Rockefeller Foundation, it is quite probable that a satisfactory start can be made, and the young generation may see the rejuvenation, reorganization, and the civilization of China, according to our understanding of the word civilization.

The greatest problem will be the improvement of sanitation. So far, in the interior there is no such term employed. Water is carried by coolies in buckets very great distances. Surface sewage is carried away in the same manner, thus giving employment to incredible numbers of laborers, where, if sanitation became an adopted feature, all of this cheap labor would be done away with, and some other means of livelihood would have to be employed to keep these laborers alive.

China will probably resent for a time this invasion of medical intrusion, just as it resented the invasion of the railway. Probably much good work will be destroyed until the natives are sufficiently educated to appreciate what is set before them.

#### THE SALVARSAN SITUATION

For some months past, it has been almost impossible to obtain salvarsan or neosalvarsan, and, undoubtedly, many patients have suffered from the lack of these drugs. As the product is of German manufacture, and it was found impossible to export it, the supply on this side of the Atlantic soon became exhausted. The great demand, however, for these drugs has produced its effect, and the American agents, Farbwerke-Hoechst Company, have announced that the British Council-General of the Port of Rotterdam has secured permission from the French and British governments for a six months' supply of these arsenic preparations, so that, as soon as the shipments arrive, they will be released to physicians and hospitals as hereto-

fore, and there will be no increase in price. Those of us who laid in a stock during the summer will probably be quite willing to use up our temporary supply, notwithstanding the increase which was paid for it. The further announcement is made that patentees of salvarsan are arranging to manufacture the product in this country, but it will take some months before a successful product can be turned out here.

It is claimed that the Dermatological Laboratories of the Philadelphia Polyclinic have been engaged for over three years in an attempt to supply arsenobenzol. This is not really a correct description of the compound known as salvarsan, but the preparation has been used in hundreds of cases with excellent therapeutic results, and with no report of any accident or complication. The drug is not as good as the German product, because it is slightly less soluble and requires filtration, otherwise it is prepared in the same manner as salvarsan and must be neutralized by addition of a sodium hydroxid solution. The price of the drug is \$2.00 for a 0.6 ampoule, and \$1.50 for a 0.4 ampoule. This latter price is entirely for ward and dispensary patients. When sold to outsiders, the prices are \$3.00 and \$2.50, respectively.

#### THE ILLINOIS SUPREME COURT DECISION AND THE AMERICAN MEDICAL ASSOCIATION

Five years ago, Dr. G. Frank Lydston, of Chicago, began to fight the American Medical Association, or rather to fight its governing body; and his claim was, that the affairs of the Association were controlled by an oligarchy. He sought to overthrow the manner of electing the Association's officers.

A decision was handed down by the Illinois Supreme Court a few days ago, according to press dispatches, upholding the finding of the Appellate Court, which seems to be an order of removal of the present Board of Directors. On the face of this order it may present a serious side; and comparatively few who read the newspaper report of the decision of the Supreme Court will understand that this is merely a technical decision. It will probably be a sweet morsel for the opponents of the American Medical Association, and it will be a delight to a large body of fraudulent drug concerns, and to all those quack-medicine houses and quack institutions that have been fought so consistently and thoroughly by the Council of the American Medical



Association. As a matter of fact, however, it may simply clear the medical atmosphere; and the Association, if it is obliged to reorganize, will probably closely follow its present methods, but keep within the letter and the spirit of the law.

The organization is so arranged that new men are constantly added to the governing body, just as happens in boards of directors of other corporations, or state boards of various kinds. The idea is to have a changing body of men, in order that the original members of the governing body will not be self-perpetuating, and will not be able to hold a monopoly in the management of this big corporation.

Those who have been opposed to the American Medical Association must eventually learn that no large body of men can be governed except by the appointment or election of men who are recognized as leaders in their profession and who are willing to give their time and attention to the business side of the Association.

If this order of things causes a disruption of the Association in any way, it will mean that medicine will receive a direct body-blow; but, if common sense prevails, the Association will come out unscathed and quite able to prove the justification of their work. Most successful corporations are attacked, and the attack is usually one inspired by jealousy. Sometimes the motives are good, but the motive of attack on the American Medical Association is not good.

Notwithstanding the matter of the Supreme Court, THE JOURNAL-LANCET confidently predicts that the officers of the American Medical Association will come out in a statement that will clear up all doubtful situations, and, if necessary, they will reorganize on the same basis as before.

Reform, of course, is in the air, and fighting is inevitable; but, in spite of all the opposition to the American Medical Association, it has stood out safe and clear in its standards, and has done more to amalgamate and unify the profession than any other organization possibly could do. The Board of Trustees, the Judicial Council, the Council on Health and Public Instruction, the Council on Medical Education, the Council on Scientific Assembly, and the Council on Pharmacy and Chemistry, are made up of men of national repute, men who are looked up to by every man in the medical profession. They have no axes to grind, but they are giving their time and their attention to work that is as important, and probably more important than that which occurs in the Congress at Washington. The per-

sonnel of each Council changes every year. It happens at times that a particularly good chairman is retained or re-elected, but even the chairmen of the two most important Councils have changed within the last two or three years,—that is, the man who was chairman retired at the expiration of his term, and either a new man or a man from the committee under him, has been elected to take his place.

It is to be hoped that the *Journal of the American Medical Association* will explain the condition fully and satisfactorily, and thus confound its opponents by a straightforward statement of facts.

## REPORTS OF SOCIETIES

### MINNESOTA NEUROLOGICAL SOCIETY

A regular meeting of the Society was held at the Town and Country Club, St. Paul, on the evening of November 15.

Dr. Hamilton presented a case showing all the signs of the typical Duchenne-Aran type of progressive atrophy, with a vague history of syphilis and the presence of the Wassermann and Nonne reactions and an increased cell-count in the cerebrospinal fluid. Since the patient was first observed, certain signs had appeared suggesting that the pathological process was spreading in the cord, and had begun to involve the crossed pyramidal tracts.

He also referred to another case where, in a woman with very clear syphilitic history, signs of lateral sclerosis of the cord had appeared, and later a progressive muscular atrophy in the hands, producing, ultimately, a fairly clear picture of amyotrophic lateral sclerosis. In this patient, also, the cerebrospinal fluid gave positive syphilitic responses.

A third case had shown, from the time when first seen, very typical evidences of amyotrophic lateral sclerosis. Syphilis was denied, and there was nothing in the history to suggest the presence of the infection; but a spinal puncture showed, again, a positive Nonne and Wassermann and a distinctly increased cell-count. reports in the literature suggesting that syphilis might have an important relationship to muscular atrophies and dystrophies.

Dr. Hammes reported the following cases of cerebrospinal lues, complicated with a pneumococcic meningitis:

Female, 21 years old, single, domestic. Family history, negative. Personal history, negative, except an appendectomy in 1911; besides this the patient states that about two years ago she had a sore on her hand, which the doctor pronounced a gonorrheal infection. Lues denied. The present complaint began about January 10, 1915, when the patient developed an abscess on her right thumb, which was very painful. This continued to suppurate slightly for one week, and on January 17 the abscess was lanced and drained. The previous evening, the patient developed severe headaches, and shortly afterwards had a general convulsion. She had another one on January 18, and her headaches have been confined since then mostly to frontal and bilateral. I first saw her on January 19, when she complained of severe frontal headaches, and appeared somewhat drowsy and confused.

The physical and neurological examination at this time was negative, except for an abscess on the right thumb, which was draining freely. The temperature was around 100° F. for two days, and then gradually became normal and has remained so. The pulse varied between 75 and 100. Leucocytosis, 12,200. Blood-pressure, 122 mm. Hg. Urine, normal.

A diagnosis of metastatic involvement of the brain following the infection of the thumb, was suggested. During the night of January 19, she had ten major convulsions, and in the forenoon of January 20, she had at least twenty more, and it seemed as if she would pass into a status epilepticus. These convulsions were Jacksonian in character, beginning with spasms of the left face, while the eyes were rotated to the left and upward. This spasm soon involved the left arm and leg after which it became generalized. In an interval between convulsions on January 20, we performed a lumbar puncture, and drew off about 8 c. c. of clear spinal fluid under pressure. This gave positive Nonne and Noguchi tests, a lymphocytosis of 12 per c. mm. and a positive Wassermann. The colloidal gold curve was suggestive of cerebrospinal lues. The Wassermann in the blood was also positive. The neurological examination at this time gave a bilateral Babinski and a mild optic neuritis, more marked on the right side. The Babinski on the left side disappeared, but on the right side was still present one week later. All the other neurological findings were negative.

A diagnosis of cerebrospinal lues was made. The patient was given six intravenous injections of 0.9 gr. neosalvarsan each, at intervals of ten days, and made a clinical recovery. The Wassermann in the spinal fluid was still positive.

One month later I again saw her, when she had developed an apparently similar condition to the previous one. Her sister gave the following history: Since leaving the hospital she has been perfectly well until two days ago, when she complained of nausea and headache. Soon after she had a chill, and the following day had a convulsion and became unconscious. At the time of the examination, she was semiconscious, and had all the manifestations of an acute meningitis. There were a rigid neck, Kernig's sign, and increased reflexes. The temperature was 103° F.; pulse, 120; respiration, 35.

Aside from a lobar pneumonia of the left lower lobe, the physical examination was very negative. A lumbar puncture was performed; the spinal fluid was turbid and loaded with leucocytes and diplococci pneumoniae; globulin test, strongly positive. The colloidal gold test

showed a discolorization in the last four tubes, such as we get in suppurative meningitis. The condition gradually grew worse, and the patient passed into a state of coma and died. The interesting feature of the case to me was the change in the colloidal gold curve in relation to the nervous syphilis and the pneumococcic meningitis.

Dr. Crafts reported the following case of tri-facial neuralgia and its treatment:

Mrs. G. A. J., aged 48, married. Nervous temperaments on mother's side.

Patient suffered from headaches till maturity. Three children. At birth of second child, twenty years ago, had scarlet fever; was very ill. A year later pain began in upper right lip; extended up the side of the nose and over the eye. Skin, very sensitive. Pain over eye was extreme, darting, and later shifted to cheek, swelling, extreme sensitiveness, leaving lip and eye; no pain in the teeth. Past six months, pain was especially severe; awake at night; pain comes in spasms; cheek gets very red. No menstruation for two years. Pain more severe and continuous since last menstruation. Always very active; inclined to hurry and worry. Cheeks flushed, especially the right, which is distinctly swollen. Frequent spasms of characteristic pain. Some teeth gone; gums show moderate and widely distributed pyorrhea and recession.

Patient came under active treatment September 17, 1915. Had eleven teeth pulled September 23. Induced static spray used daily. Rapid improvement of pain state. Entirely disappeared within about two weeks; recurred for brief time on special excitement a month later. No pain for past six weeks; swelling and redness and sensitiveness gone from cheek.

A. W. MORRISON, M. D.,  
Secretary.

## BOOK NOTICES

THE DISEASES OF CHILDREN. Edited by Pfaundler and Schlossman. Volume vi. Diseases of the Ear. By Professor G. Alexander, Vienna, and Arthur J. Bedell, M. D., translator. Philadelphia and London: J. B. Lippincott Co.

The first part of the book is given to consideration of the anatomy of the ear, especial emphasis being laid on the structure of the parts as found in infancy and childhood. This is an absolutely necessary foundation for the understanding of the peculiar clinical manifestations found in diseases of this organ in young individuals. The illustrations of this part of the book are noteworthy, for they come as near as possible to being a satisfactory substitute for the study of anatomical specimens. Unfortunately, the remainder of the work is not so richly illustrated.

The functional hearing-tests are described with special reference to their application to children with a full explanation of special difficulties encountered in such examinations. In the chapter on functional tests of the labyrinth we find that while the descriptions are sufficient for one having previous knowledge of the subject they would be hardly sufficient for one attempting to study the subject for the first time. However, as this is a book for the pediatricist and general practi-



tioner, and intended to be but supplementary to the library of the otologist, this chapter fits in with the scheme of the work.

Under the heading of "Acute Infantile Otitis" is given a short, but comprehensive, résumé of the difference between acute middle-ear affections, as found in the infant and the adult. This chapter covers, in a brief manner, the etiology and explanation of the great prevalence of these conditions in the infant, and the peculiarities characterizing the course of the disease and important points in diagnosis and prognosis. The chapters on affections of the middle ear will be found most valuable, going rather fully into the subject, as would be expected in a work of this character dealing especially with children's diseases. In connection with this should be mentioned the chapter on ear affections in general diseases.

Extracranial and endocranial otogenic affections are discussed quite fully as to symptoms and diagnosis, without going into details of operative procedures, the scheme of the work being diagnostic rather than operative.

We find emphasis laid on the education of the deaf child in the line of examination of school-children as a preventive of deafness and special classes for the instruction of individuals with impaired hearing.

Taking the book as a whole we find that the diagnostic side of otology, together with the non-surgical treatment of cases, that is, the handling of such cases as would be undertaken by the general practitioner or the pediatricist, is much more fully gone into than is the surgical phase.

It is the very evident idea of the author that the surgical side belongs rather to the domain of the specialist in otology and that minute descriptions of operative procedures would not be expected in a work addressed to the pediatricist. His idea seems, rather, to put into the hands of those coming in contact with diseases of the ear as exemplified in infancy and childhood a work on diagnosis and non-surgical treatment; and in this he has succeeded admirably.

In comparing the translation with the original, we find fidelity to the German text, conveying the meaning of the author in very clear, readable English. To do this requires time and thought, and is not an easy accomplishment. The translator is to be most heartily congratulated on his success. —CLARK (H. S.)

THE DISEASES OF CHILDREN. Edited by Pfaundler and Schlossman. Volume vii: 499 pages; illustrated. Philadelphia and London: J. B. Lippincott Co.

This work, the seventh volume of a system on diseases of children, is devoted to diseases of the eye and disorders of speech in childhood. The first portion of the volume, consisting of 358 pages, is devoted to diseases of the eye in infancy and childhood, and was written by Professor Eversbusch, one of the most eminent of German ophthalmologists. A short time before his death, Professor Eversbusch founded an out-door ophthalmic hospital for poor children, an institution which will remain as a lasting monument to the memory of its founder.

The chapters on "Congenital Anomalies and Deformities of the Eye and Development of the Infantile Eye," as well as the chapter on "Examination of Children with Ocular Affections," is worthy of especial attention. Diseases of the different ocular structures are described in succeeding chapters, and are fully and

thoroughly discussed; and the frequency of eye-affections in children, being secondary to constitutional diseases, nutritional disorders, etc., is thoroughly emphasized.

The second part of the volume, written by Dr. Max Nadoleczny, is devoted to disorders of speech and phonation in childhood,—a branch of medicine which has been largely neglected by the profession, as shown by the general lack of knowledge of the various speech-defects and the dearth of comprehensive works in English on this subject.

In Chapter I, the author discusses in detail the psychology and physiology of the development of speech, including preliminary conditions for the development of speech, preliminary stages of lingual development, the first independent talking, formation of sentences, differences in development, and physiology of the complete language.

Chapter II is devoted to lingual arrests of development, such as lingual defects attributable to partial or entire absence of the necessary preliminary conditions, or to arrest of development in the preliminary stages.

Chapter III deals with disorders of speech occurring in or after the period of advanced development. These disorders are partly genuine disturbances of speech and partly symptomatic manifestations occurring in functional and organic affections of the nervous system.

Chapter V deals with the importance and prophylaxis of disorders of speech and voice in school, and is an exceedingly interesting chapter. The author states that the number of school-children in Germany with disorders of speech and voice is about 200,000 and that the mental development of a great number of these, about 23 per cent, is necessarily backward. He emphasizes the advisability of correcting these defects, in the case of stammerers, before entering school; and this can be done between the ages of four and six.

The importance of this work is called to the attention of school physicians, family physicians, and teachers.

The entire volume is well illustrated, a bibliography is appended, and the reviewer takes pleasure in recommending it to the general practitioner, the pediatricist, and the ophthalmologist. —MURRAY.

PRINCIPLES AND PRACTICE OF OBSTETRICS. By Joseph B. DeLee, A. M., M. D. Professor of Obstetrics at the Northwestern Medical School. Second edition, thoroughly revised. Large octavo of 1,087 pages, with 938 illustrations, 175 of them in colors. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$8.00 net; half morocco, \$9.50 net.

The previous edition of this work has proved its value. This edition has been carefully revised and new material added. Some of the more recent studies in obstetrics have been taken up more completely. Among these may be mentioned the Abderhalden test and "Twilight Sleep."

The experience of the author as a teacher makes this work of great value to the student. The vast amount of clinical material which has passed under the supervision of Dr. DeLee makes his opinions and judgment of great value to the practitioner and obstetrician.

The text is clear and concise, and is enhanced by splendid illustrations.

Taken as a whole, it is undoubtedly one of the best texts published in the English language. The work should be a great source of satisfaction to both author and publisher. —ADAIR.

## NEWS ITEMS

Farmington is to have a new hospital.

Arlington, S. D., is boosting for a hospital.

Dr. R. L. Laney, of Cusson, has moved to Kelliher.

Dr. R. F. McHugh, of Eveleth, has moved to Coleraine.

Dr. I. R. Maeckerlein, of Oaks, N. D., has moved to Renville.

Dr. G. H. Lowthian has moved from Akeley, Minn., to Fulton, S. D.

Dr. O. H. Rystad has left Reynolds, N. D., to settle in Landa, N. D.

Dr. W. M. Quinn, late of Bonesteel, S. D., has located in Scotland, S. D.

Dr. D. O. Wheelock, of Minneapolis, has moved to Williston, N. D.

Dr. E. S. Fowler, of Staples, died suddenly on December 18 at his home.

Dr. H. W. Tupper, of Virginia, has left Minnesota and will locate in Nokomis, Ill.

Dr. A. E. Macdonald, formerly of Morristown and Mankato, has moved to St. Paul.

Dr. G. L. Baker, of Waltham, has purchased the practice of Dr. W. B. Grise, of Ada.

Dr. J. L. Waldner, of Parkston, S. D., is spending several weeks in postgraduate work in Chicago.

Dr. H. M. Reynolds, of Minneapolis, has associated himself with the Adams Hospital staff of Hibbing.

Dr. R. A. Beise, mayor of Brainerd, underwent a serious operation the first of last month at Rochester.

Dr. A. J. Kirghis, of St. Cloud, who was reported to have been detained in France, has returned home.

Dr. F. H. Stuart, a resident of Baudette for several years, died at his home December 7, at the age of 67.

Dr. Harold Rees, of Minneapolis, has moved to Benson, and gone into partnership with Dr. Oscar Daignault.

Dr. H. J. Robb, who has been connected with Dr. T. T. Skogen, of Flandreau, S. D., has moved to Michigan.

Dr. W. N. Morell, of Verndale, has retired, and turned his practice over to his son, a recent

graduate of the Medical School of the State University.

Dr. Burnside Foster has retired from the editorship of the *St. Paul Medical Journal*. He is succeeded by Dr. E. T. F. Richards.

Dr. Falk Tennyson, of Minneapolis, died last month at the age of 48. Dr. Tennyson had practiced in Minneapolis twenty-three years.

The Y. M. C. A. of Minneapolis, assisted by the Hennepin County Medical Society, will conduct a health campaign in the city from January 23 to February 5.

Dr. Arthur W. Dunning, the well-known neurologist of St. Paul, died suddenly just before Christmas. Further notice of his death appears in our editorial columns.

Governor Hammond of Minnesota, has appointed Dr. Charles F. McComb, of Duluth, a member of the Advisory Board of the State Sanatorium for Consumptives.

Dr. Thos. S. Roberts, of Minneapolis, has retired from general practice, to enable him to devote more time to the ornithological work he has been doing for some years at the University of Minnesota.

A Rochester paper announces that Rochester is to have a sanitarium for patients requiring special lines of dietary treatment. Dr. J. E. Crewe is at the head of the sanitarium, and a suitable building has been purchased.

The Minnesota state narcotic law goes into force with the beginning of 1916, and it provides that anyone but physicians and druggists who have the usual narcotic drugs in his possession is deemed guilty, and the fine is heavy.

The Silver Bow County Society of Montana held its annual meeting at Butte in December, and elected officers for the current year as follows: President, Dr. Alfred Karsted; vice-president, Dr. Caroline Magill; secretary, Dr. Harold Schwartz.

Governor Hammond has appointed the following members of the Minnesota State Board of Health: Dr. D. N. Jones, of Minneapolis, and formerly of Gaylord; Dr. Werner Hemstead, of Brainerd; and Dr. L. P. Wolf, of St. Paul, reappointed.

The Red River Valley Society of Minnesota held its annual meeting last month in Crookston. Officers for 1916 were elected as follows: President, Dr. W. S. Anderson, Warren; vice-president, Dr. J. F. Norman, Crookston; secretary-

treasurer, Dr. F. M. Dryden, Crookston; counselor, Dr. C. E. Dampier, Crookston; delegate, Dr. Theo. Bratrud.

In our issue of December 1 we stated that Dr. H. W. Coulter, of Mountain Lake, had moved to Sharon, N. D. Dr. H. W. Coulter, of Sharon, was a resident of Maine, while Dr. H. W. Coulter, of Mountain Lake, is reported to have gone to Europe.

The Stark County Society of North Dakota held its annual meeting at Dickinson last month. The election of officers for 1916 resulted as follows: President, Dr. W. H. Long; vice-president, Dr. Samuel Chernasek; secretary, and treasurer, Dr. O. C. Maerklein; delegates, Drs. H. A. Davis and Dr. J. H. Cosgrove.

The Fourth District Society of South Dakota met at Pierre on December 15. Papers were read by Dr. J. M. Walsh, Ft. Pierre, and Dr. T. F. Riggs, Pierre. Officers were elected as follows: President, Dr. G. H. Langsdale, Highmore; vice-president, Dr. A. H. Youngs, Pierre; secretary and treasurer, Dr. S. B. Stegman, Oneida.

Dr. A. F. Westbrook, president of the University of British Columbia, and formerly Dean of the Medical School of the University of Minnesota, is a captain of yeomanry of the British army. He wears, on suitable occasions, a captain's uniform, and some day, of course on a suitable occasion, he may go to war.

The Watertown District Society of South Dakota held its annual meeting on December 14, and elected officers for 1916 as follows: President, R. W. Mullen, Florence; vice-president, Dr. H. C. Parsons, Watertown; secretary and treasurer, Dr. H. M. Freeburg, Watertown; delegate, Dr. W. J. Benner, Willow Lake.

The Seventh District Society of South Dakota held its annual meeting in Sioux Falls on December 15th. At the business session officers for 1916 were elected as follows: President, Dr. E. L. Perkins, Sioux Falls; vice-president, Dr. H. R. Hummer, Canton; secretary-treasurer, Dr. G. Zimmerman, Sioux Falls; delegate, Dr. G. G. Cottam, Sioux Falls.

The Hennepin County Society at its December meeting elected to membership Dr. Ralph St. J. Perry, by transfer, and Dr. J. P. Rosenwald. Six new applications for membership were received. The following were chosen candidates for officers for 1916, to be voted on at the next meeting: President, Dr. J. G. Cross; first vice-president, Dr. A. S. Hamilton; second

vice-president, Dr. F. L. Adair; executive committee, Drs. H. W. Jones and E. K. Green; board of censors, Drs. D. O. Thomas and C. A. Donaldson; board of trustees, Drs. J. H. Stuart and J. W. Bell.

The Olmsted County Society of Minnesota held its annual meeting at Rochester on December 9th. A fine banquet, a couple of papers, and the annual election filled the time of the meeting. The following are the officers for the current year: President, Dr. W. D. Sheldon; vice-president, Dr. D. W. MacCarty; secretary and treasurer, Dr. H. W. Myerding. Drs. J. C. Walker and W. E. Sistrunk were elected members.

#### OFFICE HOURS FOR RENT

Desirable office hours in large suite in Donaldson Building, Minneapolis. Address 293, care of this office.

#### ASSOCIATE WANTED

A physician in a live western North Dakota town wishes a young surgeon and general physician as an associate. Address 292, care of this office.

#### PHYSICIAN'S OFFICE FOR RENT

A good location for a physician and dentist. Call or address E. A. Tupper, Druggist, Chicago Ave. and Tenth St., Minneapolis, Minn.

#### PARTNER WANTED

I desire an assistant, a partner, or someone to purchase my practice in a good town of 1,800 in Minnesota. Must be a French Catholic. Address 294, care of this office.

#### ELECTRICAL EQUIPMENT FOR SALE

At a bargain, one 220 A. C. Scheidel-Western 10 K-W x-ray transformer. One 220 D. C. 12 K-W Victor transformer. Both machines are in excellent condition. Address Ziola Jackson X-Ray Coil Co., 321 Commercial Bldg., St. Paul.

#### AUTOMOBILE BARGAIN

Chevrolet Roadster, 1915 model, used only 4 months, electrically equipped, 8-day clock, trunk, extra tires and rim. Cost \$925 as it stands; will sell for \$575. Car guaranteed in perfect condition. Phone McDonald Pharmacy, Midway 2158, St. Paul.

#### LOCUM TENENS WANTED

Regular physician with experience wanted to take my practice for three and one-half to four months, commencing January 26, 1916. Located in a South Dakota county-seat town. Practice averages over \$6,000 a year. References as to ability required. Address 282, care of this office.

#### DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.



REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	1															
Albert Lea	4,590	6,192	4															
Alexandria	3,681	5,001	1														1	
Anoka	3,769	5,972	6	2														
Austin	5,474	6,960	1															
Barnesville	1,326	1,353	1															
Bemidji	2,183	5,099	7														2	
Benson	1,525	1,677	1														1	
Blue Earth	2,900	2,319	4															
Brainerd	7,524	8,526	17												1		2	
Breckenridge	1,282	1,840	2												1			
Canby	1,100	1,528	0															
Cannon Falls	1,239	1,385	2														1	
Chaska	1,165	2,050	0															
Chatfield	1,426	1,226	2															
Cloquet	3,074	7,031	2															
Crookston	5,359	7,559	9														1	
Dawson	362	1,318	2															
Detroit	2,060	2,807	5	1														
Duluth	52,968	78,466	97	7	1	7	1	0	0	0	2	0	0	1	17	4	1	
East Grand Forks	2,077	3,533	0															
Ely	3,572	3,572	4			2												
Eveleth	3,752	7,036	12								1				3	1		
Fairmont	3,440	2,958	1															
Faribault	7,868	9,001	4			1												
Fergus Falls	6,072	6,887	3															
Glencoe	1,788	3,788	4														1	
Glenwood	1,116	2,161	3	1														
Glenwood Falls	1,454	1,454	0															
Hastings	3,811	3,983	1			1												
Hutchinson	2,495	3,368	0															
International Falls		1,487	7	1											2	1		
Jordan	1,270	1,151	3															
Lake City	3,142	3,142	5	1														
Le Sueur	1,937	1,755	3															
Little Falls	5,774	6,078	7	1											1			
Luverne	2,223	2,540	4												1			
Madison	1,336	1,811	2		1													
Mankato	10,559	10,365	18														1	
Marshall	2,088	2,152	3														5	
Melrose	3,591	2,591	3														2	
Minneapolis	202,718	301,408	310	29	11	18	6	2	0	0	1	0	0	4	20	22	3	2
Montevideo	2,146	3,056	2															
Montgomery	979	1,267	"															
Moorhead	3,730	4,840	4	1														
Morris	1,934	1,685	1														2	
New Prague	1,228	1,551	0															
New Ulm	5,403	5,648	13														1	
Northfield	3,210	3,215	3															
Ortonville	1,247	1,774	6														3	
Owatonna	5,561	5,658	6	1													1	
Pipestone	2,536	2,475	5														1	
Red Lake Falls	1,666	1,666	2														1	
Red Wing	7,525	9,048	3														1	
Redwood Falls	1,661	1,666	0															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	31		1	1											6	
Rushford	1,100	1,011	0															
St. Charles	1,304	1,159	2															
St. Cloud	8,663	10,600	16										1				4	
St. James	2,102	2,102	2	2														
St. Paul	163,632	214,744	174	14	5	11	3	1	0	0	3	0	0	5	5	13	3	1
St. Peter	4,302	4,176	3															
Sauk Centre	2,154	2,154	2															
Shakopee	2,046	2,302	3									1					1	
Sleepy Eye	2,046	2,247	0															
South St. Paul	2,322	4,510	3															
Staples	1,504	2,558	7														1	
Stillwater	12,318	10,198	7												1		1	
Thief River Falls	1,819	3,174	3	1													1	
Tower	1,111	1,111	4														1	
Tracy	1,911	1,826	1															
Two Harbors	3,278	4,990	5	1												1		
Virginia	2,962	10,473	10			1									2	5		
Wabasha	2,622	2,622	3								1						1	
Warren	1,276	1,613	3	1													1	
Waseca	3,103	3,054	1															
Waterville	1,260	1,273	1															
West St. Paul	1,830	2,660	1															
Willmar	3,409	4,135	4	2														
Winona	19,714	18,583	13	1		1	1								1	1		
Winthrop	813	1,043	0															
Worthington	2,386	2,385	1															



## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrhoeal Diseases of Children	Cancer	Fuereperal Septicemia	Accidental Deaths
Adrian .....	1,258	1,112	0															
Aitkin .....	1,719	1,633	2															
Akeley .....			0															
Appleton .....	1,184	1,221	2									1						
Belle Plaine .....	1,121	1,204	2															
Biwabik .....		1,690	1															
Bovey .....		1,377	0															
Browns Valley .....	721	1,058	1															
Buffalo .....	1,040	1,227	0															
Caledonia .....	1,175	1,372	1															
Cass Lake .....	546	2,011	2															
Chisholm .....		7,684	9		1										2	1		2
Coleraine .....		1,613	0															
Delano .....	967	1,031	1	1														
Farmington .....	733	1,024	1															1
Fosston .....	864	1,055	0															
Frazee .....	1,000	1,645	1													1		
Grand Rapids .....	1,428	2,239	3												1			1
Hibbing .....	2,481	8,832	12								1				6			1
Jackson .....	1,756	1,907	1															
Janesville .....	1,254	1,173	1															
Kenyon .....	1,202	1,237	0															
Lake Crystal .....	1,215	1,038	1															
Litchfield .....	2,280	2,333	1															1
Long Prairie .....	1,385	1,250	2													2		
Madelia .....	1,272	1,273	1															1
Milaca .....	1,204	1,102	0															
Mountain Lake .....	959	1,081	0															
Nashwauk .....		2,080	1															1
North Mankato .....	939	1,279	2					1										
North St. Paul .....	1,110	1,404	0															
Osakis .....	917	1,013	3															1
Park Rapids .....	1,313	1,850	1															
Pelican Rapids .....	1,033	1,019	0															
Perham .....	1,182	1,376	1															
Pine City .....	993	1,258	0															
Plainview .....	1,038	1,175	2															
Preston .....	1,278	1,193	3													1		
Princeton .....	1,319	1,555	0															
St. Louis Park .....	1,325	1,743	1		1													
Sandstone .....	1,189	1,818	1															1
Sauk Rapids .....	1,391	1,745	1															
South Stillwater .....	1,422	1,343	0															
Springfield .....	1,511	1,482	2															
Spring Valley .....	1,770	1,817	4													1		
Wadena .....	1,520	1,820	1															
Wells .....	2,017	1,755	2												1			
West Minneapolis .....	2,250	3,022	1															
Wheaton .....	1,132	1,300	1	1														
White Bear Lake .....	1,288	1,505	2			1												
Windom .....	1,944	1,749	1															1
Winnepago City .....	1,816	2,555	*															
Zumbrota .....	1,119	1,138	1															
STATE INSTITUTIONS																		
Anoka, Asylum .....			3											1		1		
Faribault, School for Blind .....			0															
Faribault, School for Deaf .....			0															
Faribault, School for Feeble Minded .....			1															
Fergus Falls, Hospital for Insane .....			8	3														
Hastings, Asylum .....			1															
Minneapolis, Soldiers' Home .....			6															
Owatonna, School for Dependents .....			0															
Red Wing, State Training School .....			0															
Rochester, Hospital for Insane .....			8													2		
Sauk Centre, Home School for Girls .....			0															
St. Peter, Hospital for Insane .....			3			1												
St. Cloud, State Reformatory .....			0															
Stillwater, State Prison .....			0															
OTHER PARTS OF STATE			630	38	9	19	4	4	1	0	5	3	0	2	32	58	1	56
Total for state .....			1642	110	30	64	15	8	1	0	14	6	0	20	99	154	8	136

\*No report received. REGISTRAR not doing his duty.

127 stillbirths not included in above totals.

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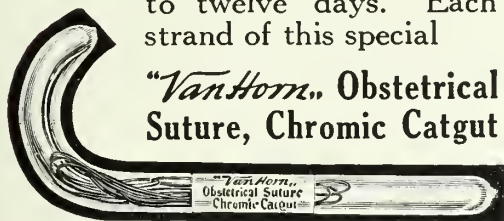
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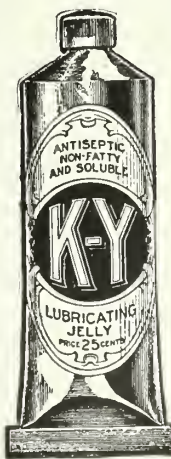
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The Chicago Policlinic and the Postgraduate Medical School of Chicago announce their 25th annual special course of postgraduate work to begin April 3 at each school and continue three weeks.

This course covers the new work done during the past year in several lines of surgery and medicine; and the man who takes it is assured by the long-continued success of these courses that he is keeping up with the progress in medicine and surgery.

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The highest award, the Grand Prize, at Panama-Pacific International Exposition, was taken by Borden's Condensed Milk Company. The prize was awarded for their Eagle Brand of condensed milk, Borden's Evaporated Milk, and Borden's Malted Milk. This is only one of many high awards given the Borden brands, which have maintained a superiority over the products of a large number of competitors, some of whom have adopted ingenious claims for their milk.

Condensed milk has its place in the dietary of the well and the sick, the young and the old; and the necessity for a high quality is urgent.

### SAVINGS BANKS

A recent Government report of the amount of money deposited in the United States Postal Savings banks shows a phenomenal condition in Minneapolis. Instead of being the highest per capita, as general conditions

would lead one to expect, the deposits here are almost the lowest in the city's class or in any city approaching its class. The reason is easily found. The savings banks of Minneapolis stand so high in the estimation of all classes that they get the money.

The Farmers and Mechanics Savings Bank is entitled to most of the credit for this fact. This bank is one of the oldest and largest banks in the West, and its management has always been a credit to the city.

### THE LINCOLN RUBBER CO.

Every point of excellence in rubber gloves is much appreciated by all who use gloves; and, of course, no one thinks of doing without them when the hand comes near any possible source of infection.

The Lincoln Rubber Company claim for their gloves several points of excellence, and their claim is readily verified or disproved by the use of a single pair of their gloves, which, they claim, eliminate tension on the finger points, cramping of the fingers and hand, and wrinkles and folds. They also preserve the sensitiveness of touch natural to the bare finger, and permit the utmost freedom of finger-action.

Messrs. Noyes Bros. & Cutler are the Northwestern agents for these gloves.

### ST. JAMES HOSPITAL AND SANITARIUM

The man who built a beautiful and commodious hotel structure for St. James, Minn., as a contribution to the city's commercial prosperity, little realized that it would be a failure in this respect and yet become a great success in another, both commercially and altruistically. As a hospital building it is doing for the city of St. James and a large surrounding territory a work that cannot be done as a business enterprise.

Under Dr. W. H. Rowe, Jr., this hospital and sanitarium is meeting, at a very moderate cost, the needs of a large constituency. It gives special attention to mental and nervous cases, and is equipped for treatment by hydrotherapy, electrotherapy, and massage; and it has added a "mud-bath" department, which does a distinctive work on well-organized lines.

Dr. Rowe will be pleased to correspond with physicians who are seeking a hospital and sanitarium for their patients.

### ANOTHER LARGE MINERAL WATER SPRING IN WAUKESHA

Several months ago while workmen were digging Moor (mud) on the grounds of Waukesha's mud-bath institution, a live spring was discovered. It was found that the spring would flow an average of 200,000 gallons in twenty-four hours. Samples of water were taken to competent chemists immediately, and it was found that the water was not only pure, but contained marked medicinal properties; in some instances similar to those contained in Moor used at the bath establishment. The Waukesha Moor Bath Co., also known as the Grand View Health Resort, is at the present time erecting a large up-to-date spring-house, where patients as well as visitors may go to drink freely of that wonderful mineral water. Plans are also formulated to pipe the water to the mud bath establishment for use in their bath departments, as well as in the fountains in various parts of the building; also the guest-rooms.

Waukesha has also organized a Golf Club this year.



A splendid course has been laid out on the grounds of the Bath company, which are only nine blocks distant from the business center. Guests of any of the local institutions are extended the privilege of playing.

Waukesha today, with its splendid institutions, mineral waters, recreation and railroad facilities should have all the opportunities in the world to draw a large patronage of health-seekers that have heretofore visited European spas.

### THE NORTHWESTERN HOSPITAL

Too gracious words can hardly be said of the Northwestern Hospital of Minneapolis as for its management, which is directed by women of refinement, culture, and executive ability. The atmosphere of this hospital is an atmosphere of the home just as far as it can be made and yet be consistent with the imperative demands of medicine and surgery.

The staff of the hospital is made up from the best men, in both medicine and surgery, in the Minneapolis profession.

The hospital's training school for nurses deserves special credit for the work it is doing. The opportunities furnished its students are unexcelled; and they enter upon their work, after graduating, with a feeling that the great demand made upon them under modern conditions can be met in a professional spirit and with a pride in their attainments that make for success.

The prices of the hospital are always moderate. Any information desired concerning the hospital and its work, will be cheerfully furnished by the superintendent, Miss A. Jeanette Christiansen.

### INTEROL

The obstipation-stasis-autotoxemia syndrome is complex in its etiology as well as in its nosology. Anything that interferes with the caliber of the gut, or with the free passage of intestinal contents through the tube, results in a difficult passage of the bowel contents along the intestinal canal.

This may be a ptosis—or displacement of the gut at some point, a kink—which is a bend produced by a bunch of new-formed tissue, abnormal sagging of suspensory structures, or dislocation of some part of the tube. This, together with abnormal dryness or lack of lubricating material due to disturbance of the intestinal mucous glands, results in stagnation of the current, stoppage in many instances, a damming back of the current.

As a result of these influences, opportunity is given for increased bacterial or chemical action, the production of an abnormal amount of toxins,—of unusual virulence, irritation and disturbance of the filtering or protective action of the mucous membrane, and resulting absorption of increased quantities of poisonous material.

As a result of so many factors working more or less interdependently, is the establishment of the syndrome, a complex group of many symptoms that may simulate about any disease or diseased condition met with in medicine.

These conditions, if allowed to go uncorrected, may, and often do, result in serious and even fatal disease.

The ideal treatment for such conditions is lubrication. The ideal lubricant is Interol.

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# THE JOURNAL- LANCET

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North Dakota and South Dakota State Medical Associations

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No. 2

## VOLVULUS\*

BY R. E. WEIBLE, M. D.  
FARGO, NORTH DAKOTA

The subject of volvulus is an old and well-worn one, and I shall not attempt to cover it. There are, however, a few facts which will bear reiteration and emphasis. To begin with, let us remember the origin of the word. It is derived from the Latin *volvere*, meaning to turn, to roll itself round about. Rokitansky's "Hand-Book on Pathological Anatomy" divides volvulus into three classes:

1. A loop may undergo occlusion by making a half or a whole turn about its longitudinal axis.
2. The entire mesentery, or a section of it, may rotate with its associated bowel-loop a half or several times about its axis. This results in rotation about the mesenteric axis.
3. A loop with its mesentery may constitute the axis about which another loop with its mesentery may be turned. This last class is what is usually called an intestinal knot.

This classification has ever been accepted as a standard one. Such authorities as Senn, Keen, and Lexer, and Gould's dictionary give the definition approximately as follows: "A volvulus is an intestinal obstruction caused by a rotation of the intestine upon the axis of the mesentery."

Intestinal knots, no doubt, at times, can truly come within the meaning of this definition; but there are many of these that do not, or are, at least, doubtful examples. As, for instance, if a loop of the bowel bends, not twists, around another loop in such a way as to cause obstruction, this would be called an intestinal knot. Let it

be noted, however, that it is a bending, not a twisting. Would it not be better, then, to put these knots in a class by themselves, just as we do other obstructions, and not under the head of volvulus?

Nowhere in my study of the subject have I found in print this interesting fact, namely, that cases of volvulus have been reported of all parts of the gastro-intestinal tube except of the gullet and the rectum.

Of the class of torsions along the longitudinal axis we have first, *gastric torsions*. In a recently reported case Kocher states that there was an hour-glass contraction with a very small cardiac sac; that the lower pouch of the stomach, and the first portion of the duodenum, were twisted on their own axis 270°. He says that twenty-eight cases are known, and that seven of them had hour-glass stomachs.

There is but one common form of torsion along the longitudinal axis. This is found in the cecum. The fact that this intestine has frequently little or no mesentery makes this possible, and it is at the place where the free cecum is attached to the colon that torsion usually takes place. John Marnoch in the *British Journal of Surgery* quotes Faltin as stating that in Finland 27 per cent of all cases of volvulus were cecal.

The appendix, of course, is often found twisted on its own axis. Deaver reports a post-mortem finding of a longitudinal torsion of the gall-bladder. Elliott gives a report and a drawing of an axial torsion of a Meckel's diverticulum, whose distal end was adherent, the torsion being caused by a volvulus of the adjoining

\*Read at the 34th annual meeting of the North Dakota State Medical Association at Bismarck, N. D., May 12 and 13, 1915.

ileum on its mesenteric axis. However, these last cases do not affect the intestine proper.

Is there such a condition as a torsion of the small intestine on its longitudinal axis?

In one of my cases of intestinal obstruction, due to an adherent Meckel's diverticulum, the ileum proximal to the obstruction for about a foot in length was tightly twisted on its own axis to a size but little larger than a lead-pencil. Above this area the bowel was distended. While at the time of operation this case looked as though the very unique condition of a longitudinal torsion of

of the small intestine. The loop was black and gangrenous; it measured twenty-two inches in length and was resected."

I was eager to find a full description of this case, for, if it was clearly an axial torsion of the small intestine, it was, so far as I was able to find, the only one on record. Search of the literature, however, revealed no further reference to it.

Rokitansky says that longitudinal torsions of the bowel occur only in the cecum, and that "such an occurrence is scarcely conceivable in the small



Torsion of the whole mesentery.

the ileum was present, reflection has led me to believe that the obstruction was really at the adherent diverticulum, and that this twisting was a tonic contraction or ileus produced by peristaltic attempts of the bowel to force its contents past the point of obstruction. This view is probably correct, since, after freeing the adherent Meckel's, the twist unrolled easily and there was no serious disturbance of the circulation of this part of the bowel.

Lejars in his "Urgent Surgery" says, "I have recently observed an ——— axial torsion

intestine on account of the uniformity in caliber, the absence of angular flexures, and its loose position, as every rotation of one part of the intestine upon its axis would be counter-balanced by rotation of the next segment."

From what evidence I have been able to gather, the conclusion is forced upon me that there is no such condition as volvulus of the small intestine on its own axis.

In the last class of volvulus, namely, torsion of the intestine on the axis of its mesentery, we are dealing with the most common form of volvulus.



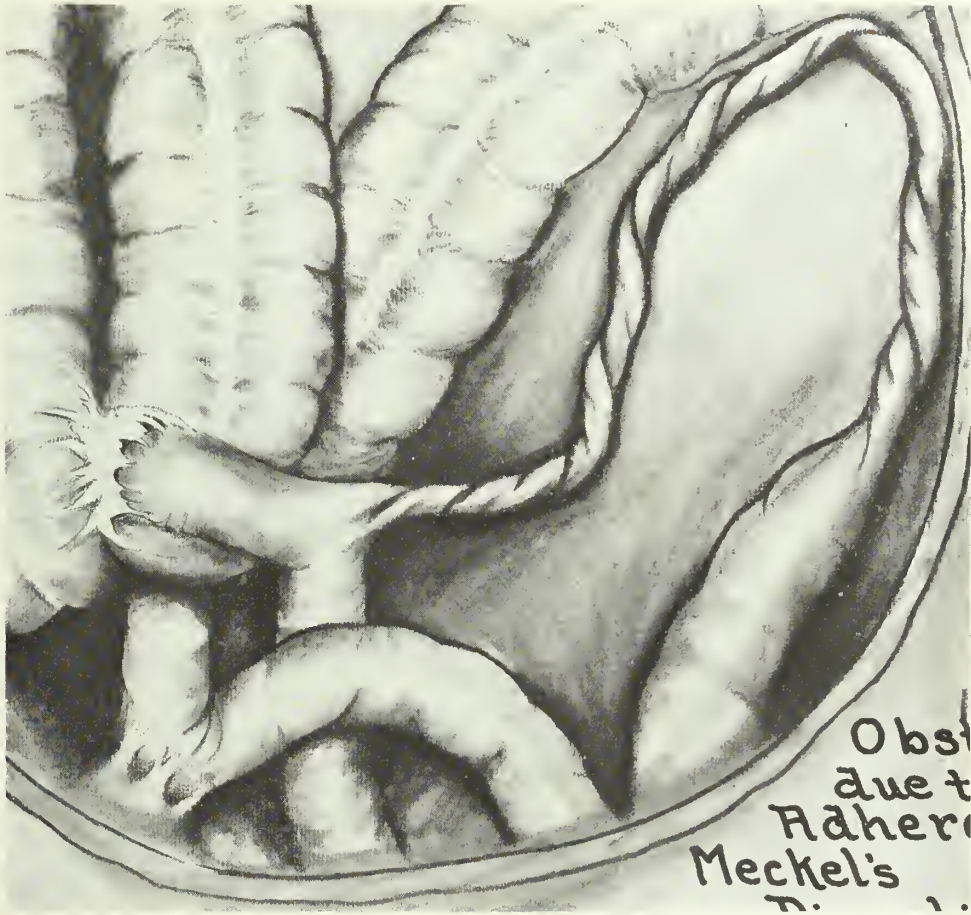
This form is most frequently located in the sigmoid flexure. With the limbs of the horseshoe-shaped loop close together, distention, peristaltic movements, and strain are sufficient to cause the twist.

The small intestine is also not infrequently the site of this type of volvulus, but here adhesions or incarcerated hernia are apt to be the cause. Any or all parts of the small intestine may be involved. Scudder reports a volvulus of the jejunum.

twisted into a rope, the large intestine had rotated all into the left side, the small intestines were very distended and discolored; and, as some reports of other cases show, the mesentery to the terminal ileum was pulled into a fold obstructing the small intestine at this point.

In a paper written in 1913, I gave nineteen cases successfully operated upon by European surgeons and four by men on this side of the water.

Our text-books have not done justice to this



Obstruction due to adherent Meckel's diverticulum.

The most extensive of all torsions is that of the whole mesentery. The third portion of the duodenum, all of the small intestine, and even the large intestine as far as the descending colon, may take part. Such an extensive rotation is possible only when there is a loose attachment of the duodenum, a slender mesenteric root, and, if the large intestine is involved, a common ileocolic mesentery.

The illustration may serve to show the condition in my own case. The whole mesentery was

last subject, for they either omit any mention of it at all, or dismiss it with but a half dozen lines. In a letter from George Tully Vaughan he says, "It is remarkable that so important a subject has had such little attention from American surgeons."

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## DISCUSSION

DR. E. P. QUAIN (Bismarck): The early symptoms of volvulus differ somewhat from those of other intestinal obstructions by their gradual onset. This may be explained by the fact that the rotation of the loop of bowel involved does not take place suddenly, but makes a gradual turning upon some part of the mesentery as a pivot. The symptoms of colic, emesis, obstruction, and distension, are therefore also gradual and slow in their development. Forceful peristalsis may overcome the obstruction for a time, or a temporary untwisting of the bowel may occur and give the impression that all danger is over. But, if the cause of the torsion, whether recent or embryological, should still be present, the condition is very apt to recur and to demand radical treatment. One must be on his guard, therefore, in a slowly oncoming, or in an intermittent, obstruction. Cathartics are contraindicated in every form of intestinal obstruction; and in a case of beginning or threatening volvulus their use is almost certain to hurry on the complete obstruction.

I have but little experience with volvulus in the adult, and the few cases I have seen have all been treated "expectantly" with strong laxatives, while the obstruction became complete, the bowels paralyzed, and the patient exhausted and dying.

I show you here a post-mortem specimen of the abdominal organs from an infant, who died from a volvulus of the entire intestinal tract, except the sigmoid and rectum. This infant was born nearly one month prematurely, and showed evidence of intestinal obstruction soon after birth. The baby vomited when a few hours old, and had some blood in the stools on the second day. From the second to the eleventh day there was bile-stained emesis almost daily, and occasionally blood in the stools. The general condition grew worse, the abdomen became tympanitic, and emaciation pronounced. On the eleventh day the abdomen was opened under local anesthesia with a hope of finding a curable cause for the intestinal obstruction. A condition of torsion of the entire intestinal tract from the duodenum to the sigmoid was found to have taken place. The distended bowels filling the abdomen hung from a pedicle not over 1.5 cm. in diameter. This pedicle was found to contain the duodenum, transverse colon, and superior mesenteric artery, and was attached at the normal situation of this artery. The abnormal rotation had been against the hands of the clock, and slightly more than 360°. After untwisting the mass the duodenum was found to pass behind and parallel with the cecum, and emerged below the head of the cecum and the appendix. The child seemed to recover nicely from the shock of the operation, but died suddenly in a vomit-

ing spell the next day. At autopsy it was found that no coagulation of the blood had taken place in the wound, and that enough oozing had occurred to further reduce the vitality of an already practically dying infant. It is my opinion that the torsion of this embryologically defective mesentery had begun before birth, and that it may have been the cause of the premature labor.

I recently saw another case of volvulus in a boy of twelve. In this instance there was also a congenital anomaly as the basis for the lesion,—a non-rotation of the colon. The boy had had several attacks of bowel-obstruction within the past four or five years. The present attack began nine days before admission to the hospital, with distension and occasional emesis, but with some relief and passing of gas and small stools each day until two days before admission. During these two days symptoms of complete obstruction prevailed. Operation was undertaken at once, and a condition of torsion of the first part of the colon was found. On further examination of the bowels it was discovered that the entire colon from the cecum to the rectum was attached by a mesentery at the promontory. The colonic mesentery formed a continuation downward and to the left from the lower end of the mesentery of the small intestines. The central segment of this colonic attachment was very short, and confined this part of the colon in a kink against the promontory. A network of apparently inflammatory adhesions at this point made the bowel still more affixed to the abdominal wall. At the cecum the mesentery was long and free, allowing the acute rotation which had become the immediate cause of the bowel-obstruction. After relieving the obstruction, an appendicostomy was made. This was done partly to afford good and immediate drainage from the distended cecum, but chiefly to anchor the colon and prevent future recurrence of the volvulus. The patient made a good recovery.

DR. WEIBLE (closing): The male is peculiarly disposed to volvulus of the whole mesentery. It occurs at all ages, but most often between twenty and thirty. One type of it begins at birth,—the volvulus of the new-born. Dr. Quain's specimen shows it splendidly. They are extremely rare and I consider myself fortunate in seeing this one.

To get at the predisposing factor, observe the embryology. In the third fetal month the duodenum has a mesentery. Fixation of the colon has not begun, and its mesentery is directly continuous with that of the ileum. All of the cases in the new-born show this embryonic condition, and it, or a slightly further development of it, is present in volvulus of the whole mesentery in the adult.

Further, in the adult the root of the normal mesentery is six inches broad, extending obliquely from the left side of the 2d lumbar vertebra to the right sacro-iliac symphysis. When total volvulus is possible, the mesentery is not so broad, and is apt to be longer from the spinous attachment to the gut margin.

So far as I know, there has never been saved a case of volvulus of the whole mesentery in the new-born.

## RELAXED PELVIC OUTLET\*

By R. L. MURDY, M. D.  
ABERDEEN, SOUTH DAKOTA

My subject was developed anatomically from the female pelvis, and is concerned mostly with the structures which make up the soft parts of the pelvic outlet. For the purpose of this discussion the condition may be considered strictly a post-partum one, and often the result of more than one birth, together with the sequence of accumulative pathology which follows severe or repeated birth-injuries of long standing.

This suggests the traumatic and secondary conditions involved in its production. Relaxed pelvic outlet is therefore an altered condition of function and anatomic relation due to injuries of child-birth. A full understanding of the subject

proper understanding of the surgical principles involved.

The pelvic diaphragm works in exact opposition to the diaphragm,—that is, during expiration it contracts and during inspiration it relaxes. The pelvic diaphragm acts on the principle of a sling or a suspension bridge, as it were, and disturbance of its relation results in marked changes to the pelvic outlet. Its function is therefore to guard the pelvic outlet, maintain the position of the vagina and rectum, and assist in labor, defecation, and micturition. It helps to



Fig. 1. Method of examination and demonstration of relaxed pelvic outlet with vesicocoele.

cannot be obtained without a knowledge of the anatomical structures involved; therefore I wish to consider, briefly, the main anatomical features before alteration. The anatomical structures mostly involved are the pelvic diaphragm, the perineum, the birth-canal, and, secondarily, the bladder and rectum. The pelvic diaphragm receives its strength mostly from the pelvic fascia; and this is supplemented by the muscles giving, in addition to strength, a large amount of elasticity and flexibility to it.

Other structures which add to the special function of the part are, the loose connective tissues, fat, blood-vessels, which are very tortuous, and the nerve supply. Chief among the muscles are the levator ani, transversus perinei, coccygeus, and pyriformis. A knowledge of the origin and insertion of these muscles is necessary to a

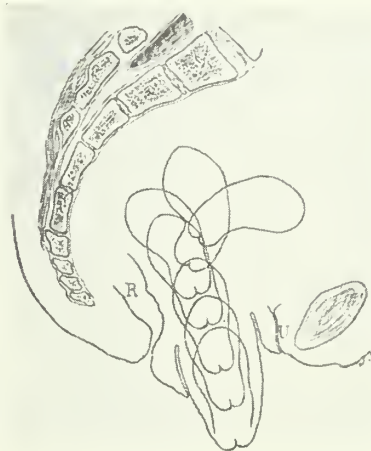


Fig. 2. Prolapse of the uterus, showing the intermediate stages between the uterus in antelexion and in complete prolapse. Result of vaginal relaxation. (Kelly.)

maintain intra-abdominal pressure, and provides flexibility for the outlet,—a feature very important to accomplish its complex function.

Injuries may be in the form of laceration, which involves the muscles and fascia direct, or in over-distention and loss of tone, submucous separation, and sliding of the connective tissue. Tears may be superficial or deep, central or up the fornices, or on one side alone. If the tear goes direct through the tissues in such a way that the muscles and fascia are injured, there is bound to be a large separation of the lacerated parts. Contraction of the muscles follows with great weakness of the fascia so injured, all of which is apparent in the deep tear with large gaping surfaces; but, in the cases with slight or no mucous injury, one is surprised at the great amount of post-partum relaxation. The latter condition represents a very large number of the

\*Read at the 34th annual meeting of the South Dakota State Medical Association at Sioux Falls, May 18-20, 1915.

cases, and is due to submucous separation of the muscles and fascia, which may be very extensive. Instead of submucous separation the muscles and fascia may be so over-stretched that they remain relaxed or paralyzed. The post-partum relaxation of the pelvic diaphragm has its homologue in the relaxation of the abdominal muscles and fascia. This is so marked that no abdomen is the same after confinement, neither is the pelvic diaphragm.

The sequence of events which follows these injuries and their repair is the main theme of this paper.

If the tear is deep, or the submucous separation is extensive, the muscles and fascia of the diaphragm lose their tone and contractility, or

The usual symptoms of relaxed vaginal outlet, in addition to the physical findings, are a feeling of weakness, dragging down, or bearing down, backache, pain in the sides, nervousness, bladder and rectal symptoms, and marked reflex disturbance of the stomach. As the possibilities are very numerous in these cases, they can be treated only in a general way in a paper of this character.

The general indications for treatment are the restoration of anatomical structures, reposition of misplaced organs, and their maintenance in good position. The restoration of the pelvic diaphragm and the perineum are of the first importance. Many good operations have been devised for this purpose.

In the cases of long standing, more or less mis-

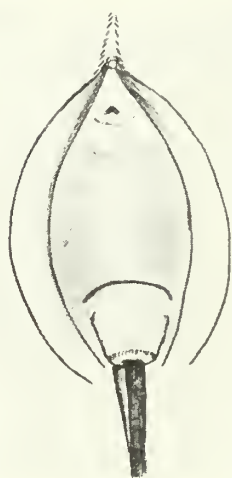


Fig. 3.

Fig. 3. First step in anatomical method for replacement of the bladder and the vaginal wall in vesicocoele. (Diagrammatic.)

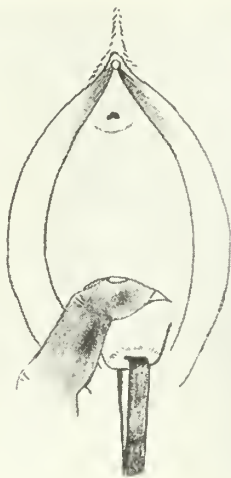


Fig. 4.

Fig. 4. Transverse incision and dissection of the vaginal wall from the bladder. (Diagrammatic.)

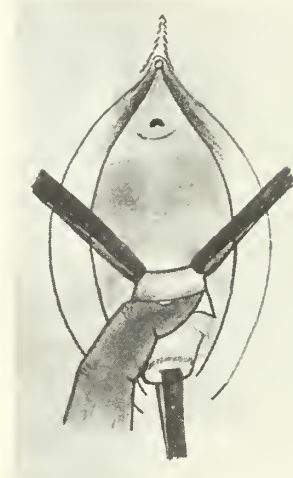


Fig. 5.

Fig. 5. Dissection of the bladder from the uterus. (Diagrammatic.)

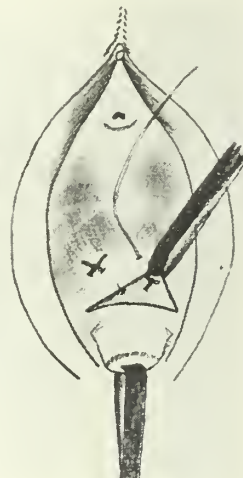


Fig. 6.

Fig. 6. Method of introducing sutures through the vaginal wall and suture to the uterus. (Diagrammatic.)

one is drawn from the other. In the case of the levator ani, the posterior part of the muscle and intact fascia will draw the rectum backward and downward, obliterating the groove between the buttocks with change of position. It will pull the vagina open at the outlet, take away the flexibility of the diaphragm, straighten out the naturally tortuous vessels so that the parts become congested and heavy, and change the position of the uterus and all the pelvic viscera. If, in addition to this, other injuries have occurred to the rectovesical fascia, and there is sliding of the connective tissue supporting the vagina, bladder, and uterus, laceration of the cervix, and subinvolution, then conditions are right for prolapsus, rectocoele, and vesicocoele.

placement of the uterus is inevitable, also anterior colpocele, or colpo-cystocoele. Colpo-cystocoele has been one of the most difficult features to correct. Many operations have been devised, most of which have been failures, in whole or in part. Few, if any of them, are anatomically correct, and none of them entirely satisfactory. Therefore, working along individual lines, I have elaborated a technic, which has been entirely satisfactory and has stood the test of time. The method is based on the uniform distention of the vaginal wall or bladder, or both. In this condition there is present a relaxation or partial detachment of the bladder and vaginal wall from the uterus. It generally occurs in connection with relaxed vaginal outlet, uterine prolapsus,



and other conditions due to child-birth injuries with the supervening changes in structure and position of organs as a sequence of time, position, occupation, etc. The method is easy of execution, possesses the merit of simplicity, and is as near anatomically correct as the altered structures will permit. It places the bladder and anterior vaginal wall in proper relation to the uterus. It seeks to reestablish anatomic conditions as before injury. It can be done with the minimum loss of tissue. It does not open the peritoneum for infection. It is well adapted for the slight cases that suffer from cystitis, as well as the large cystoceles. It will cure a fair percentage of the cases without a ligament or uterine suspension operation. But in the extreme

3. The bladder is pushed up to a higher plane; and it may or may not be sutured. The vaginal wall is pulled back far enough to take up all the relaxation, and is sutured to the denuded uterus with four or five sutures, which include all the layers of the vaginal wall. The sutures are started on the mucous membrane; and the needle penetrates all the layers, then takes a deep bite into the uterus, then back through the vaginal wall, to be tied to the first end on the mucous membrane. Five or six interrupted sutures in this manner will secure its attachment to the uterus. After the vaginal wall is secured in this manner, a few interrupted sutures will secure the cervical and vaginal edges. It is scarcely ever necessary to trim away much or any



Fig. 7.

Fig. 7. All sutures introduced and tied; also interrupted sutures uniting the denuded edge of the vagina. (Diagrammatic.)

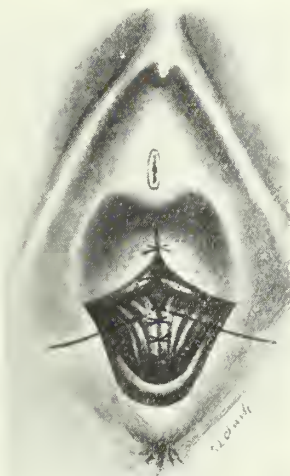


Fig. 8.

Fig. 8. One of the best recognized methods for restoring the relaxed vaginal outlet. Median sutures of the perineum, muscles, fascia, and mucous. Illustrating sutures in levator ani.



Fig. 9. Completed median suture.

cases, in which it occurs as a part of a general relaxation and prolapsus, the other conditions must receive proper surgical treatment by well-recognized methods at the same time. The simple ligament operations of the Webster Baldy or Gilliam type, will be sufficient to hold the uterus up, providing the pelvic diaphragm has been properly restored at the time.

The steps of this operation are as follows:

1. A transverse incision of the vagina just where it is deflected from the cervix. The incision goes through all the vaginal tissues.

2. Dissection of the anterior vaginal wall and bladder from the uterus, and the anterior vaginal wall from the bladder. The dissection does not open the peritoneum unless work on the ligaments or tubes is contemplated at the same time.

part of the vaginal wall. In case of much superfluous tissue, it should be removed. The fact that so little tissue has to be removed is an argument in favor of the anatomical basis of this operation. It secures a broad surface for permanent fixation, it reproduces the condition and position of the bladder and vagina before the colpocele developed, and it cures cystocele.

#### DISCUSSION

DR. H. T. KENNEY (Pierre): This subject is one of great interest to the general practitioner. We have to deal with this condition almost every day. There is probably not a day passes but that some woman steps into our office and says, "Doctor, have you something good for female trouble?" You will find them often with a marked relaxation. In general practice this cannot be helped in some cases. In hospital work always, and indeed in most cases, they should be carefully examined to see that they are not torn, having especially a submucous tear. I know that time and again a doctor will examine the patient and say there is no tear, and



a few months later we will find a generally relaxed pelvic outlet. When you examine them you discover that the transversi perinei are loosened, and also the levatores.

I believe that in every case where there is the slightest tear this should be repaired, and not by one stitch alone. One stitch does not hold the parts, which will rub up and down and by each other; and you will get no result, but if you put in two or three stitches, and be sure to get them in well, you will be well repaid for your trouble. This is well demonstrated by your cases in which you have repaired a tear. You will find in a year or so that patients so treated are in better shape than the women who showed no tear at the time, but who come to you later in a relaxed condition, showing that there has been a submucous tear.

In the repair of the perineum at the Riggs' clinic in Pierre, we do just about what Dr. Murdy said we should not do in the last case,—that is, we dissect up the mucous surface, put a No. 2 chromicized catgut in the levatores, just at the juncture of the sphincter and then starting at the edge of the skin, put in from four to six sutures of silkworm gut, which take in the perineal fascia and the muscles which have been separated, and approximate them. One plain catgut catches the mucous membrane, making it into a little roll at the top, which Dr. Murdy condemns, then clip off the redundant tissue. We have found that while its cosmetic effect is not very brilliant, still it holds the pelvic muscles together in good shape and gives perfect satisfaction outside of that one point.

DR. E. W. JONES (Mitchell): I would like to ask Dr. Murdy what he does in large cystoceles, with mucous membrane between the external opening of the urethra and the row of sutures that he puts through the mucous membrane into the uterus. There is quite a space there in his diagram.

DR. D. A. BOBB (Mitchell): For a number of years I have been doing this same operation. It is called the Holden operation. Of course we do not believe anything in names nowadays, but it is just a matter of getting your levator ani muscle, which is torn, together again; and, if you are sure you do that, then you are safe.

I believe that if a couple of silkworm-gut sutures are passed through from one side of the vulva to the other, dipping down deeply enough to catch the levator ani muscles and then tied, after the inner catgut sutures are tied, it will act as a stay to the parts while they are healing, and the patient can move about in the bed with much more safety.

DR. S. M. HOHF (Yankton): After all is said that might be said as well as done, this fact remains, that we attempt or should attempt in every instance to imitate the condition that existed at the time of the laceration. The Worthheim-Watkins, the Emmet, the Hegar, the Dudley, and every other operation that we now know of, are becoming more and more obsolete, and we are adopting that method which in our hands is giving the best results. Are these not the facts?

If obstetricians were more careful, and women in confinement fell into the hands of competent men,—I will not make it quite so broad, but will say careful men,—men who will recognize conditions as they happen, we would have less post-puerperal trouble resulting in chronic female diseases than we meet with today. When that time arrives, and the obstetrician does his duty, he will approximate the tissues at once to the best of his

ability by simply introducing a few silkworm-gut sutures.

In our work for a lacerated perineum, we denude and raise a flap, removing just as little tissue as is possible, and by the use of silkworm-gut sutures, as has already been brought out, bring the tissue together. A little puckering of the rectovaginal flap may result. We have never found this, however, of any consequence. If it is desired to obtain cosmetic results, a little of the redundant mucous membrane may be removed. Since, at the time of the original laceration, the tissues became widely separated and subsequently covered by mucous membrane, this tissue will become redundant at any later operation, which it is permissible to remove, and thus do away with the only objection that the essayist has advanced.

In our experience in all repair work, the simpler the operation the more satisfactory the results. In elderly women, however, in whom the tissues are generally more or less relaxed, it will be necessary to pay some attention to the ligaments supporting the uterus; and we have found that shortening the uterosacral ligament will invariably cure many cystoceles, and that it is not necessary to resort to these complicated methods for the cure of the cystocele. Draw the cervix back in the hollow of the sacrum by reduplicating these ligaments with silk ligatures through the cul-de-sac, bearing in mind again that the simpler the operation for relaxed pelvic outlet, the better the results. I thank you. (Applause.)

DR. R. L. MURDY (closing): In my rambling talk I had to generalize much to cover a subject so extensive as pelvic relaxation and its complications; therefore, I am pleased to have the gentleman who entered into this discussion, emphasize the various features which should have been dealt with more in detail.

Dr. Kenney spoke of submucous separation. In that particular class of cases my sympathy goes out to the ordinary practitioner who has done a very careful job of sewing up all the visible lacerations, but, when the gynecologist a few months or years later, finds extensive weakness of the pelvic outlet, he is inclined to blame the practitioner for carelessness or ignorance. He failed because the main injury was submucous and the lacerations were quite harmless.

Dr. Jones asked what was done with the redundant tissue in cases of extensive vesicocoele. I am very glad to answer his question, because it simply emphasizes the point which I made when I discussed the technic. It is this: complete the dissection, the bladder from the uterus, and the anterior vaginal wall from the bladder, and push the uterus and vaginal wall back where it belongs, and then there will be very little redundant tissue to remove.

There is very little sacrifice of tissue when this method is used, which, together with the normal replacement of organs and parts, makes it a superior operation. It is much easier to do, and is much better in its remote effects, than the operations suggested by Dr. Hohf, which includes vaginal denudation and shortening from side to side.

In conclusion, I wish to state that we have many good methods for the correction of relaxed vaginal outlet and its complications.

Cystocele is the most troublesome complication of this condition, and past methods for its correction have been the least satisfactory in my experience; but the above technic has given me good results, and therefore I am presenting it for what it is worth.

## THE VALUE OF VITAL STATISTICS

BY A. D. HARD, M. D.

MARSHALL, MINNESOTA

WITH COMMENTS BY MRS. GERDA C. PIERSON

The practical value of any custom, law or regulation to society depends upon the good effect which it is instrumental in producing.

Registration of births and deaths as a means of permanent record for future use depends upon the completeness and dependability of the records made. Any law that appears to be efficient, and yet, when put to the acid test of practical use, fails to produce complete and dependable results, is elected for reform. Some things in life are more or less useful in proportion to their amount; but vital statistics is not one of these. If the record of births and deaths includes only a majority of such events, the record is of but very little value. To be of real practical use the record must be as near perfectly inclusive as human ability is able to produce. The vital statistic laws of Minnesota are incomplete in their requirements, impractical of execution, and productive of recorded information of only a part of the statistics that depend upon completeness for their greatest value.

To remedy this condition we read in the medical magazines appeals to physicians to exert themselves in an effort to improve the condition, which is a virtual confession that the condition is bad.

We must admit that many births and deaths are not reported according to the regulations now in force. Reading of the law would lead one to suppose that all such reports would be forthcoming; but the practical effect of a law does not always follow the path indicated.

Now that we are able to point out the many deficient features of this law from experience with it, why is it not possible to remedy the faults instead of trying to overpraise the inefficient measure? Before we can produce a more efficient law we must locate the loopholes that serve to make this one so inefficient. Vehemently to deny the presence of such loopholes when they are plainly to be seen, does not tend toward any improvement of unsatisfactory conditions.

In 1910 the birth returns were not complete enough, if I may use that expression, to permit Minnesota to be admitted into the group of states whose records are considered of sufficient completeness to be of real value. If the efficient results of birth and death records are to remain

subject to the whims and reluctant compliance of doctors, midwives, parents, and friends, how can any one reasonably expect them to be of any great value? These persons "shall" make these reports; but they do not do so. And under the present law they never will exert themselves to a point where the reports will be complete.

There is no use in asking me to name some of these loopholes. They are open to everybody to see who has any desire to look; but to one who does not wish to see they will remain unobservable.

The principal trouble at present consists in the fact that a lot of old "bone-heads" with eyes half closed are sitting on the back seats in a trance of self-contentment when they should be up in front on the do-something seats. It does not require much "punch" to urge the physicians of the state to be more careful in making their reports more complete, and the results compare in direct relation to the "punch" used.

This tirade may evoke sneers and condemnation from the persons who cannot be induced to hustle up in front where they can take notice of present necessities and the means for their relief.

A system that will insure an almost perfect record of births and deaths can be devised if a pound of judgment and a peck of ability be devoted to the task.

COMMENTS ON THE ABOVE, MADE AT THE REQUEST  
OF THE EDITORS,

BY MRS. GERDA C. PIERSON

Director of the Division of Vital Statistics of the  
Minnesota State Board of Health

I have read carefully Dr. Hard's article and I am much inclined to think that the doctor is not familiar with the situation in Minnesota.

The law as it appeared in the revised statutes of 1905 was criticised by one registration clerk, and we suggested to him that he formulate a bill which he would consider practicable. This draft was carefully worked out by this registration clerk and the one in charge of the Vital Statistics Division of this Board. A copy of this bill, which became a law in 1913, was submitted to the Washington authorities.

Dr. C. L. Wilbur, formerly Statistician for the State of Michigan, later Chief Statistician for the Bureau of the Census at Washington, and at the present time Director of the Division of Vital Statistics in New York, made the following comment on the bill sent him: "This bill is practically a much condensed form of the



'Model Bill.' It is an excellent draft, and I believe that it incorporates about everything of importance in the 'Model Bill,' but in greatly condensed form. I believe that it would afford thorough and effective registration, and it might be, under your power to pass any additional rules and regulations, more convenient both to pass and to enforce than the 'Model Bill.' On the whole, I am very favorably impressed with it. With a few slight changes, I would, as a statistical administrator, just about as soon collect statistics under your bill as under the revised 'Model Bill.'"

At the time Dr. Wilbur made this statement, he was Chief Statistician of the Census Bureau at Washington. He is a man thoroughly versed in statistical work, and the points needed in order to enforce proper registration of births and deaths. The "Model Bill" referred to by Dr. Wilbur was the one used as a basis for the Minnesota law now in force, but was changed slightly in order to conform to local conditions.

The forms of blanks now in use in Minnesota for reporting births and deaths were not prepared by the Minnesota State Board of Health. They conform to the standard certificate used by the Census Bureau at Washington.

Minnesota was admitted into the death-registration group of states on its 1910 returns, and has since that time been sending transcripts of all its death-records to the Census Bureau each month. At the present time the death-registration area is composed, I believe, of 23 states. To be admitted into this group requires that more than 90 per cent of deaths be recorded. Minnesota has a higher percentage than this reported.

There is no birth-registration area at the present time, but a few weeks ago the Director of the Census notified Dr. Bracken that a temporary area would be established, and he authorized that transcripts of the Minnesota birth returns for 1915 be sent to Washington. Those states which pass the test will later be admitted into the permanent area, which, it is hoped, will be established.

Below is a table showing the number of births and deaths reported to this office for Minnesota for 1908 to 1914, inclusive:

	Births	Deaths
1908 .....	43,769	22,231
1909 .....	45,082	22,053
1910 .....	45,059	24,146
1911 .....	46,779	23,533
1912 .....	49,800	22,042
1913 .....	51,396	24,395
1914 .....	53,606	25,043

The above shows that the returns are constantly on the increase, which means, of course, a greater amount of work. Unfortunately, the appropriation in Minnesota for the work of Vital Statistics has remained the same for several years. Our difficulties in handling the increased number of returns will therefore be apparent. The present appropriation is not at all sufficient.

Our large cities (St. Paul, Minneapolis, and Duluth) are required to send their original returns of births and deaths to the office of the State Board of Health. This has been very favorably commented upon by different statisticians. As a general thing, the large cities in other states appear to be a law unto themselves as regards these records, and the State has no control over them. It will readily be seen that han-

dling, checking, and correcting the records for these three cities, adds greatly to the work of the Vital Statistics Division.

I infer from one statement made by Dr. Hard that he feels the records are not of much value unless we succeed in securing reports of *all* births and deaths occurring. I cannot agree with Dr. Hard on this point. This office receives daily requests for certified copies of these records to be used for legal purposes, and they are accepted in any court, so far as we understand. Further, the transcripts which we furnish the Census Bureau at Washington are used in making up the statistics relating to deaths for the entire country.

I wish it were possible for Dr. Hard, and all other physicians in the state, to spend a week or more in the Vital Statistics Division of the State Board of Health. I think they would have an entirely different opinion of this work. Not only would they appreciate the importance of the records more than they are now appreciated, but they would appreciate also the difficulties we have to contend with in making these records of value.

We have to carry on an enormous correspondence in completing, correcting, and bringing in records. This correspondence consists, not only of an average of thirty-five personal letters a day, but as many, or more, form letters. The work in the Vital Statistics Division covers, not only the records of births and deaths, but the following up of illegal burials, etc.

Every report, card, letter, etc., is dated the day it is received at this office. Each such report and card is registered against the district in which the case occurred, and also to the credit of the proper registrar. A set of books is kept, showing the records by months; and a glance at this book, which covers more than 2,500 districts, immediately shows whether any district is in arrears.

All death-reports for infants less than two years old are checked to ascertain whether or not the birth is on record. If it is not on record, a form letter is sent out following up the matter. By following up the death-reports of infants, we obtain hundreds of birth-reports each year which would not be reported otherwise, for the reason that we had no previous knowledge of the same.

All local registrars in the state are requested to report irregularities to this office, as regards unreported births and deaths, illegal burials, etc. This, of course, results in a very extensive correspondence.

We have a very excellent check on deaths, because the embalmers in the state are required to report to this office each month particulars concerning each death where they have had charge of the remains, and also those cases where they have simply sold the coffin. These are checked with the original returns; and, if a report is missing, the matter is followed up. The various railroad companies submit to this office periodically the duplicate shipping permits. These are also checked against the original death-returns.

We cannot devise so thorough a check on birth-returns, for the reason that many births occur in isolated country districts, and it sometimes takes several months before the local registrar receives any knowledge of the case; but the figures as shown in the foregoing table certainly indicate that Minnesota is going forward, instead of backward, in its work on Vital Statistics.

I believe that our law is a good one. The fault lies,

not with the law, but with the unfortunate condition we are in as regards funds. We cannot do all the work we would like to do. Were the appropriation for this work what it should be, it would be possible for us to keep a man in the field following up unreported births and deaths, and filing complaints against physicians, midwives, parents, or undertakers who have neglected to perform their duty.

Dr. Hard refers to the many "loopholes" in our law, which, he states, are evident to any one who wishes to see. It is true there may be "loopholes" in the Vital-Statistics law, as there are in other laws; but I am

inclined to think, if there was money enough to enable us to enforce the law, it would work out as well as do most laws. It has been tried out more than once by prosecuting many physicians throughout the state.

Dr. Hard states that a system that would insure an almost perfect record of births and deaths could be devised, if a pound of judgment or a peck of ability be devoted to the task. . . . We are at all times willing to receive suggestions, and to do, with the limited funds at hand, all we can to make the records as complete as possible.

## STREPTOCOCCAL PHARYNGITIS

By JOSEPH D. LEWIS, A. M., M. D.

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MINNEAPOLIS

Recent bacteriologic investigations have revealed that many grave systemic diseases have their genesis in streptococcal infections of the pharynx. This knowledge immediately impressed clinicians with the importance of a correct diagnosis, as well as proper treatment, in every case of "sore throat."

In Schöttmüller's classifications of streptococci, based upon the color of the colonies grown on blood agar, we have, from a practical viewpoint, a satisfactory grouping. He divides them as follows: (1) streptococcus viridans; (2) streptococcus hemolyticus; (3) streptococcus mucosa.

It is noteworthy that streptococci and pneumococci are constant inhabitants of the pharynges of healthy individuals, selecting, as their habitat, the mucosal creases, where they dwell as innocent saprophytes. We know that bacteria are transmitted to the vascular or lymphatic systems only when the local resistive forces are diminished;—that is, when the epithelium of the mucosa is impaired or dead.

To say that bacterial infection operates independently as the *primary* cause of "septic sore throat," would be to oppose the general principles governing the mechanism of disease. There is much evidence tending to show that there must needs be antecedent systemic factors, broadly speaking, vasomotor disturbances, which have impaired the general, and, in turn, the local resistive forces, before one is vulnerable to bacterial invasion.

This is how we may explain why the same organism (streptococcus), taken from one healthy subject, will sometimes produce disease when the bacteria are introduced into another seemingly normal individual.

This theory, it would seem, is the only tenable

one accounting for the biochemical and biophysical phenomena attending the rapid onset of acute streptococcal pharyngitis, and the most acceptable explanation of the bacterial activity, in which we see innocent saprophytic organisms converted into virulent bacteria, an exemplification of the laws of mutation.

The streptococcus viridans is a germ of low virulence, and usually selects, as its habitat, the *surface* of the pharyngeal mucosa. In pharyngeal inflammations, which are mild (catarrhal) and non-suppurative in nature, the streptococcus viridans usually predominates. There are, however, frequent exceptions to these clinical findings, as even severe suppurative processes occasionally disclose the streptococcus, usually associated with conditions which are subacute or chronic, accompanied by symptoms not necessarily severe, yet highly fatal in the cases of so-called streptococcus viridans endocarditis.

In the deeper pharyngeal inflammations, such as the scarlet fever throat, lacunar and membranous anginas, tonsillar phlegmon, peritonsillar abscess, or acute suppurative processes anywhere in the pharynx, the streptococcus hemolyticus (often mixed with pneumococci or staphylococci), is the one most frequently recovered of the group. Pharyngitides in which the streptococcus hemolyticus predominate almost always eventuate in pus cavities.

In the several epidemics of acute pharyngitis occurring in a number of cities of the United States, a highly virulent streptococcus hemolyticus, referred to as a "peculiar" type, was the responsible micro-organism, which, it would seem, was at once pathogenic when it came in contact with the pharyngeal mucosa of certain individuals.



The typical clinical development of streptococcal pharyngitis is as follows: It begins as a severe inflammation, marked by edematous infiltration of the submucosa, with the characteristic enormously swollen uvula. Soon the picture is one of lacunar (follicular) angina, the discreet cryptic exudates coalescing until the entire tonsil, and frequently the soft palate and uvula, are covered, a condition which is clinically known as *membranous pharyngitis*. In severe cases the exudate may extend to the epiglottis or larynx. The thin, non-adherent false membrane is observed in a variety of shapes, as spots, streaks or festoon-like forms. The color varies from white, yellowish-white, gray, or brown to one of almost black. Glandular involvement of varying degrees usually appears shortly after the onset of the pharyngeal lesion.

In rare instances the infiltration of the submaxillary and sublingual connective tissues is so extensive that the entire front of the neck becomes involved, and so intensely swollen that it is rendered stony hard. Streptococcal pharyngitis, thus complicated, occurs only in men and usually terminates fatally. The condition described has been assigned a separate clinical entity, being known as *Ludwig's angina*.

In some cases of membranous pharyngitis, unaccompanied by any evidence of systemic diphtheria, the Klebs-Loeffler bacillus, or organisms closely resembling it (diphtheroid bacilli), are recovered from the pharyngeal lesion. The distinguishing features of the non-diphtheritic membrane are, that it is less adherent, the under surface raw, and less bleeding follows its removal than in the typical diphtheritic cases.

Experience has proved that it is vain to depend upon the clinical picture for a correct diagnosis, as the following pharyngeal diseases have many characteristics in common: mild forms of syphilitic angina, diphtheria, tonsillitis of scarlatina, leukoplakia, Vincent's angina,\* herpes, or pemphigus, so that we are obliged to appeal to the microscope for reliable diagnostic enlightenment.

The systemic reactions are variable, all degrees from manifestations of toxemia to bacteremia are noted; not, however, proportionate to the local involvement. Streptococcal bacteremia, as well as endocarditis, following tonsillitis, are sequelæ much more common than is generally believed. Two of my cases, one a tonsillar phlegmon, the other following Vincent's angina, terminated fa-

tally, the first in two weeks as the result of an acute fulminating pulmonic abscess, the second in four days, due to heart and kidney involvement. Streptococcal bacteremia was present in both cases.

The urine, as a rule, is smoky, but albumin or casts, common in the diphtheric cases, rarely appear in streptococcal pharyngeal inflammations. Cases of Ludwig's angina die in a state of asthenia, brought about principally by cardiac involvement.

*Treatment.*—Rest in bed until all symptoms disappear should be rigorously insisted upon. Since we cannot hope to annihilate the bacteria present in the pharyngeal tissues, and, recognizing the harmful effects of drastic topical measures, it is egregious folly to cling to a treatment which, for some inscrutable reason, has been so generally favored. The local condition responds more kindly when treated *defensively*. We have in orthoform a harmless and effective remedy for the pain. Non-irritating, detergent mouth-washes and gargles, such as Dobell's solution or bicarbonate of soda, 1 dram to a glass of water, cold in the beginning, and, later, as hot as can be borne, answer the requirements. In the early stage, ice-packs are recommended. A 25 per cent solution of ichthyol (rendered less disagreeable by adding oil of anise, saccharin, and glycerin) is the remedy *par excellence* for pharyngeal edema. It is best employed as a cold spray and may be used as often as every hour.

In cases which are diphtheroid in nature, the administration of diphtheria antitoxin (5,000 to 15,000 units, intravenously), has proved itself an efficient therapeutic agent. The administration of vaccines, in these acute cases, is not recommendable, since there is no scientific basis or clinical evidence to justify their employment. Urotropin seems to render valuable service in some of these cases. The condition of the alimentary tract demands watchful and appropriate care.

The submaxillary and sublingual swelling in cases of Ludwig's angina is best met by numerous stab-wound drains. The incision for the evacuation of a peritonsillar abscess should be made transversely, i. e., *across* the muscular fibers, at a point about midway between the base of the uvula and the crown of the last molar tooth. By this method the wound remains open, thereby providing for better drainage.

Tracheotomy is urgently indicated in cases

\*As the fusiform bacillus and spirillum found in this disease do not grow on the ordinary culture media, it should be a routine practice in suspected cases to examine a smear stained with carbol-fuchsin.

where the laryngeal involvement is sufficient to obstruct respiration.

#### CONCLUSIONS

1. Streptococcal diseases of the pharynx are more common than is generally supposed.
2. The seriousness of these diseases, when infective foci are established in the internal organs, or Ludwig's angina complicates the condition, should be fully comprehended.
3. Bacteremia is very often present in both acute and chronic streptococcal pharyngitis.
4. Streptococci are constantly present in the

mucosal folds of the pharynx, and assume a maleficence toward their host when the resistive forces become impaired.

5. In many pharyngeal lesions, microscopic information alone will disclose the true nature of the disease.

6. Patients should be kept at rest until all symptoms have disappeared.

7. Local treatment, if at all irritating, will increase the inflammatory process.

8. Vaccine therapy in acute streptococcal pharyngitis, merits no scientific or clinical endorsement.

## CONVERGENCE INSUFFICIENCY AND DIVERGENCE EXCESS\*

BY L. J. CORIA, M. D.

MINNEAPOLIS

In choosing the above subject, my object is to try to stimulate waning interest in a notoriously dry subject, one which, nevertheless, though commonly unrecognized, is of considerable importance, not only to the oculist, but to the general practitioner as well.

Many of the bizarre symptoms originating ostensibly from hysterical and neurasthenic conditions, and oftentimes considered merely the subjective signs of some systemic disability, are, in reality, secondary ocular manifestations of extrinsic muscular inefficiencies.

It is true that such muscular ailments are possibly the result, in turn, of a general physical depreciation; but not infrequently they are primary, and should be diagnosed and treated as such.

The writer will discuss the subject briefly, and will endeavor to give a clear and concise résumé of the signs and several tests necessary to classify the two, which prove the most confusing, and from which emanate the greater number and variety of disturbances, that is, convergence insufficiency and divergence excess.

Each eye, as we know, is supplied with an extrinsic and intrinsic muscular mechanism through the normal functioning of which its motility is maintained and accommodation governed.

Probably the most common primary cause of extrinsic troubles are accommodative derangements; and, because of the intimate association

between the two, a consideration of each in its relation to the other becomes imperative. However, this paper will no further regard errors of accommodation after the admonitory instruction that accommodative effort always requires the assistance of a refractive correction before treatment of inefficiencies is undertaken.

By classifying the extrinsic muscles into elevators, depressors, adductors, and abductors, we derive a nomenclature which explains the character of their activities. It is quite obvious that an anomaly implicating in any degree one of these grouped muscles, or its nervous control apparatus, will occasion corresponding inefficiency in its respective sphere of action, and inevitable diverse subjective and objective phenomena.

Normally, co-ordination between the sundry individuals is exercised to the extent that the eyes are maintained in a state of constant balance, their visual axes remain symmetrical, and thus an image is permitted to fall on correlative areas of retinal cells in each. Binocular single vision, therefore, is only possible when perfect equipoise prevails. Various anomalies do exist with no evidence of diplopia, yet some certain group or factor thereof is, in this event, compelled to under- or over-act in order to sustain equilibrium.

Under-action (hypokinesia) originates from a structural defect, an insertional imperfection, functional feebleness, or under-stimulation from governing nervous centers. Over-action (hyperkinesia), inversely, is explained by over-development, over-excitation, etc.

An under-action of the adductor group per-

\*Dr. Coria prepared this paper for The Journal-Lancet just before his death.—The Editor.

mits but a low degree of convergence, and therefore has acquired the appellation, "convergence insufficiency." The similar title, "divergence excess," refers to that condition in which an over-sustained action of the abductors predominates.

As formerly observed, subjective symptoms of each are multiple and various, traversing the gamut from simple headache to appendicitis. Repeatedly, the two states are combined, obscuring definite diagnoses of either. Thus, primary convergence insufficiency unites with secondary divergence excess or secondary convergence insufficiency with primary divergence excess. Convergence insufficiency, not rarely, is mistaken for divergence excess. The latter, if persisting alone, will ultimately result in secondary convergence insufficiency, which gradually grows greater as time advances.

Objection signs, however, are usually rather more precise; and from the following table (modified Duane) cases in point can be readily indexed.

#### *Convergence Insufficiency*

1. Slight deviation for distance.
2. Remote near point of convergence.
3. Exophoria (cross diplopia) increasing as object approaches the eye.
4. Decreased convergent power.

#### *Divergence Excess*

1. Marked deviation for distance.
2. Normal near point of convergence.
3. Exophoria (cross diplopia) decreasing as object approaches the eye.
4. Increased divergent power.

Satisfactory data for classifying, according to this table, may be obtained by a few simple tests conducted in the manner now described; but their purpose is only subserved when earlier examination of monocular and binocular fixation fields,—and for this purpose the tangent plane is unexcelled,—allows the elimination of any suggestion of paresis.

First. Test the binocular fixation for distance using a single light at six meters. Our subject essays to constantly fix this light with both eyes. By covering one, then rapidly its associate, and

revealing the first, we note any convergent or divergent movement therein as it readjusts itself to vision. A prism with base in for abduction or base out for adduction, which overcomes the movement, is the measure, plus two, of prevailing exophoria or esophoria. Now, subtracting two from the actual number of prism degrees employed, we arrive at the true measure of deviation.

Second. Find the near point of convergence by moving toward the eyes, equidistant from each, a fine perpendicular line. The point, distant in cm. at which one eye ceases to fix this line and deviates, is the point of our seeking. It should not exceed 6 cm., except in presbyopes or in cases of excessive interpupillary distance.

Third. Utilize a red Maddox rod or cylinder before one eye and again a light at six meters. If our patient develops crossed diplopia, increasing as the light approaches, a convergence insufficiency prevails. If, on the other hand, the distance between the two images decreases with its approximation, overmuch divergent power is diagnosed.

Fourth. Measure the relative strength of adduction and abduction, using prisms, the base out for the former, and the base in for the latter. A binocular single image should be attained at six meters with an eighteen degree prism, the base out, or a six degree prism, the base in. These prism strengths vary, of course, with the general physique, but a moderately constant ratio between the two should remain in the proportion of three to one.

A brochure by Duane on "Muscles and Inefficiencies" embraces this subject very comprehensively, but differs somewhat in its characterization and conception of the two phases herein discussed.

In conclusion, the writer wishes to impress those interested with the fact that an intelligent and conversant understanding of anomalous muscular manifestations requires only a short routine procedure with each case under consideration; and with the information so acquired the address of requisite treatment to the condition becomes simple.



## SOME POINTS REGARDING ASTIGMATISM

BY STANLEY E. KERRICK, M. D.

MINNEAPOLIS

There is probably no error of refraction more common or more troublesome than astigmatism. By astigmatism is meant so-called regular astigmatism in which there is a difference in the curvatures of the principal meridians of the cornea, and, in certain cases, of the crystalline lens also. There are several subdivisions of astigmatism, the most troublesome and the most difficult to correct being the so-called mixed form, in which a part of the rays of light passing through the cornea meet at a point anterior to the retina, the rays at right angles to these meeting at a point posterior to the retina. Often in cases where the astigmatic error is small, it is difficult to measure and to determine the axis by any other method than the objective with the use of the ophthalmoscope or the retinoscope.

*Symptoms.*—Distant and near vision is nearly always diminished. There are some people who possess a very small degree of astigmatism who are able to read the normal  $\frac{5}{6}$  line of the distant test-type, yet this small degree often causes asthenopic symptoms, more or less troublesome. One cannot always depend upon the distant test-type test for the diagnosis of small degrees of astigmatism, much less so to determine the axis. A very small error in certain cases will cause the patient more eye-discomfort than will larger amounts in others.

I have had many cases with asthenopic symptoms showing an error as low as .25 D., and upon wearing the correction, these patients received as much comfort from their lenses as did many others with higher degrees of astigmatism. In certain cases a low degree does not produce eye-strain symptoms until the patient views moving-pictures, the patient coming in with the complaint that every time he goes to the moving-pictures the eyes feel strained, and upon examination objectively the only error found is a small degree of astigmatism, which, when corrected, gives no more trouble. The constant flickering of the pictures may cause strain in eyes with practically no astigmatism; but my experience has been that in most cases some astigmatic error is present. In this connection I would like to cite the following case:

CASE 1.—March 10, 1915, Miss C., aged 21, says she thinks her eyes are weak because of headache and eye-strain at the moving-picture show; no trouble whatever when not viewing the pictures. Vision, R.  $\frac{5}{6}$  and L.  $\frac{5}{6}$ ;

other findings, normal. Under examination with the retinoscope, the eyes being under the influence of a cycloplegic, she shows plus .37 D., astigmatism, axis 95, in the right eye, and the same amount, axis 85, in the left eye. This correction was put up for her. On May 7 she reports that the eyes have given her no more trouble. This is one of many such cases.

CASE 2.—May 8, 1915, Mr. L. G. B., aged 25, wore glasses one and one-half years ago for two months, not satisfactory; was wearing plus .50 D., sphere R. and L. He now complains of lacrimation and slight blurring; no other eye-symptoms. Vision, R.  $\frac{5}{6}$  and L.  $\frac{5}{6}$ ; Maddox, degree prism, base out. Lacrimal drainage, normal. Retinoscopic examination shows plus .25 D., astigmatism, axis vertical, in each eye. This error was corrected, and on May 21 the patient reports that the eyes have given him no more trouble.

I wish to report the case of a young man who had a fairly high degree of astigmatism, and whose only complaint was that he found it necessary to "squint" in order to see clearly, complaining of no headache or other symptoms of strain, as did many others with very small degrees of astigmatism.

CASE 3.—March 15, 1915, Mr. C., aged 24. Vision R.  $\frac{5}{15}$  and L.  $\frac{5}{15}$ . He says he has to "squint" in order to see clearly; slight twitching of the left upper lid occasionally; no headaches. Exam.: no fundus changes. Retinoscope shows right eye plus 2.00 D. astigmatism, axis 100; left eye shows .75 D. astigmatism, axis 85. This correction was put up; and on May 20 he reports no more trouble.

I will also report a case showing only a small degree of astigmatism, the patient complaining of dizziness and gastric disturbance after close work.

CASE 4.—Miss J., aged 24. Vision right eye  $\frac{5}{5}$  and left eye  $\frac{5}{5}$ ; seldom headache; some blurring and dizziness after using the eyes for close work and always after reading, a peculiar feeling in the stomach. Wore lenses for a short time seven years ago. Retinoscopic examination shows an astigmatism of minus .37 D., axis 180, in each eye. This correction was put up for her. She reports no more dizziness or gastric disturbances.

The following case demonstrates the hereditary tendency in refractive errors:

CASE 5.—Mr. G., aged 21, by retinoscopic examination, gives in R. eye, minus .75 D., sphere, combined with minus .75 D., cylinder, axis 180; L. eye, minus .75 D., sphere, combined with minus .62 D., cylinder, axis 165. This patient's father wears for distance, R. eye, minus 2.75 D., sphere, combined with minus .25 D., cylinder, axis 5; L. eye, minus 2.75 D., sphere, only. The mother wears for distance plus 2.25 D., sphere, combined with plus .25 D., cylinder, axis 90; L. eye, plus 2.00 D., sphere, combined with minus 2.50 D., cylinder, axis 30. In astigmatism the patient's only complaint may be

that there is a slight blurring. Others may complain of a long train of symptoms such as twitching of the lids, lacrimation, eye-strain, supra-orbital, temporal, or occipital headache, dizziness, gastric disturbances, squinting, and so on. It is surprising how often we find cases with low degrees of astigmatism manifesting many of the above symptoms, and how many with high degrees, make little complaint.

*Method of Examination.*—In examining the refractive condition of the eye, use is made of two methods: subjective and objective. It is well to use in the examination all available means, but the most trustworthy will be found in the use of the ophthalmoscope, direct method, or by the retinoscope at a distance of 40 inches from the patient's eyes. For this examination the eyes should be under a cycloplegic. By use of the retinoscope there is no mistake in the axis or the total amount of the astigmatism. In this country, much use is made of the ophthalmometer or keratometer for measuring corneal astigmatism. There is frequently some lenticular astigmatism. When this is present, it cannot be measured by the ophthalmometer. The retinoscope should be used in all cases to determine the total astigmatic error.

For securing cycloplegia, efficient results are

obtained by the use of ophthalmic discs containing, gr.  $\frac{1}{50}$  of each, of homatropine hydrobr. and cocaine hydrochl., unless there is a marked spasm of the ciliary muscle, when it will be necessary to use a fairly strong solution of atropine sulphate. A disc is inserted into each lower conjunctival sac. The eyes should be kept closed for a period of fifty to sixty minutes; after this time the pupils will be found to be well dilated, and the ciliary muscle, in most cases, paralyzed. In the cases in which there is not complete paralysis of the ciliary muscle, a second disc may be inserted into each conjunctival sac. There is slight smarting for about one-half minute after the insertion of the discs, no other discomfort being noticed. The dilatation lasts, on an average, about twenty-four hours, during which time the patient experiences difficulty in reading only. It is well to prescribe a pair of blue glasses to be worn immediately after the dilatation if the patient is going into the bright light. I have made use of the discs in the examination of a good many hundred cases, and I find them very efficient. Glasses, in any case of astigmatism, should be worn all the time, and spectacles should be recommended; with them it is possible to maintain the proper axes of cylindrical lenses.

## THE INTERPRETATION OF THE WASSERMANN REACTION

By GEORGE MANGHILL OLSON, M. D.

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MINNEAPOLIS

The Wassermann reaction, made by the clinician from sera from his own patients, of whom he has a complete record,—physical examination and history,—is a source of pleasure, and, with the possible exception of the biopsy, is the most valuable laboratory test in dermatology. The Wassermann reaction made by the clinician or laboratory man from sera of patients of whom he has no history or knowledge, is a valuable test, and, on the whole, is of enormous importance to all concerned; but it is occasionally a source of error and irritation under these circumstances. It is not sufficiently appreciated that the Wassermann reaction is not, strictly speaking, a specific one. The physician to whom the positive Wassermann means syphilis, and the negative Wassermann that the patient is free from syphilis, is doomed to disappointment, no matter where his Wassermans are made. A positive Wassermann depends upon the presence of a sufficient amount of

the so-called antibody to inhibit hemolysis. This so-called antibody is found in many other conditions besides syphilis, although usually not in sufficient amounts to completely inhibit hemolysis. The Wassermann is a very delicate test, and occasionally discrepancies between different laboratories naturally result. This has led to the criticism of the laboratory by the clinician and mutual recriminations between the laboratories. The trouble, however, lies not in the technic, as, undoubtedly, all reputable laboratories, where one would expect a reliable report upon any laboratory examination, are competent to do the Wassermann test. In this connection it must be remembered that size has very little to do with efficiency, at least as far as Wassermans are concerned. Many physicians speak of a large laboratory as necessarily more efficient than a small laboratory. This misconception is especially held in regard to the Wassermann labora-

tories, many supposing that a large equipment, with a large supply of animals, such as guinea-pigs, etc., are the essentials; and they seem to forget that it is the man in the laboratory, and not the laboratory, that makes the tests. As a matter of fact, a few feet of space, with an incubator, ice-box, electric centrifuge, and a supply of glassware and accurate pipettes, are all that is needed. Sheep's blood, guinea-pigs, etc., can easily be purchased when needed.

The difficulty in the interpretation of the Wassermann reaction lies partly in the fact that, in a number of conditions, such as acute illness, jaundice, cachexia, carcinoma, etc., we quite frequently get some inhibition of hemolysis when the patient is unquestionably free from syphilis. The amount of this inhibition of hemolysis is equal to that obtained in many cases of syphilis—many cases of syphilis that have been treated, many cases of syphilis in the tertiary stage, in infants with hereditary syphilis, etc. With no history all these reactions must be called negative, and many patients with active lesions of syphilis or who have had insufficient treatment, rely on this negative report and fail to take further treatment. With the history of such a patient known, such sources as acute illness, cachexia, etc., could be ruled out, and a slight positive Wassermann would be the correct report. This can be done only when the clinician makes his own Wassermanns, or where there is complete co-operation between the clinician and the laboratory man.

Another difficulty lies in the fact that the Wassermann is not a simple chemical test in which the reagents are stable. The reagents in the Wassermann test vary each time the test is made. Complement from different guinea-pigs varies a great deal. Antigen not only varies, but is not stable. The reagents used in the Wassermann test often are fairly stable for days; at other times the hemolytic power will be very much lessened, even two or three hours after the first test is made. By proper, and a sufficient number of controls, an error arising from this instability

of the reagents can practically always be eliminated, but the possibility of an error of this kind always exists. Complete inhibition of hemolysis nearly always means syphilis; but even here theoretically errors are possible, and, as a matter of fact, do occur in the best laboratories here and abroad. This is due either to this instability of the reagents or to the presence of the so-called antibody in the blood in large amounts even when scarlatina, malaria, etc., in addition to syphilis, are absent.

The above facts apply also to the Wassermann made with the spinal fluid. The Wassermann made with the spinal fluid should always be checked up with the Nonne-Apfelt test, the cell count, the Lange colloidal gold test, etc., for these are exceedingly valuable corroborative tests.

#### CONCLUSIONS

1. The Wassermann test is the most valuable test in dermatology.

2. A positive report should always depend upon a complete inhibition of hemolysis, and practically always means syphilis. If at variance with the clinical findings, the test should be repeated, if necessary, a number of times; and, if a number of negatives are obtained and the clinical findings are against syphilis, this one positive Wassermann should be disregarded entirely.

3. A slight Wassermann report can be made only when the history is known to the one making the test, as a degree of inhibition of hemolysis, due to a number of factors, is so commonly obtained that a slight Wassermann report under these conditions would be only a source of confusion to the clinician.

4. With the history of the patient known, the value of the Wassermann is at least doubled.

5. The physician treating any considerable number of patients with syphilis should, if possible, make his own Wassermanns. If he does not have the time to do this, he should see the tests as they are finished and supply a complete history of the patient.



# THE JOURNAL-LANCET

## SNUFF-POISONING\*

By E. L. CRISPIN, M. D.

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The use of snuff, a most pernicious habit with definite evil effects, has been creeping into this country in the last few years. Snuff in the form of pure ground tobacco has long been used in the United States; in the southern states it is chewed and used on snuff-sticks in the form of a paste. Furriers take it to expel the fine seal hair that gathers in the nose during the day's work; and the effect of such usage is probably not different from that of other kinds of tobacco.

There is another form of snuff, however, the effects of which are far in excess of that seen in the immoderate use of tobacco, that must contain ingredients other than the usual mixture of pulverized tobacco. This snuff, the so-called "Copenhagen," is sold and used extensively in the middle northwestern states by large numbers of foreigners, as well as American adults and youths.

References in the literature to the general use of this form of snuff are of comparatively recent date. Four years ago<sup>1</sup> attention was called to it as an evil in the state of North Dakota, and quite recently Hielscher<sup>2</sup> has presented a paper on the subject. Twenty-five cases have been indexed in the Mayo Clinic; none prior to 1914. The duration of the habit in some of these extends over a number of years.

The use of "Copenhagen" snuff produces most deleterious results. The users of excessive amounts suffer from chronic headaches, indigestion, irritable heart-action, increased respiration on exertion, and impaired mentality to the point of degeneracy. Delusions and hallucinations are not uncommon in the worst cases. A number of cases of marked psychosis have been observed in the State Hospital at Rochester, believed to be due to the excessive use of this form of snuff. (Heyerdale<sup>3</sup>.)

The habit is generally acquired through a friend who passes on a chew or a pellet to try, or by boys trying a pinch from sample boxes with which many of the smaller towns have been well sown. It is commonly used as a pellet placed under the upper or lower lip. Apparently it does not stimulate the salivary glands, as does chewing tobacco. The lack of expectoration and the

invisible manner in which it can be chewed, undoubtedly is a large factor in the growth and spread of the habit. The pellet is held under the lip until its effect is gone, and then replaced by another. The effect of the drug comes rapidly, evidently from absorption through the buccal mucous membrane. It stimulates and satisfies the craving that its use causes. In the novice it produces a marked dizziness, increased heart-action and a "jag" feeling. The habit quickly grows; and in the chronic cases is most difficult to break. Attempts to cease its use leave a wrecked condition of the nerves.

Hielscher<sup>2</sup> calls attention to high blood-pressure as one of the conditions found in users of "Copenhagen" snuff. However, in our twenty-

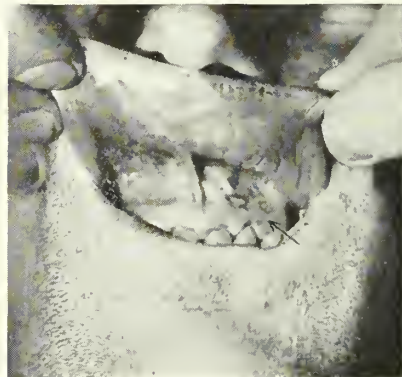


Fig. 1. Ulcer of the mucous membrane of the upper lip.

five cases there was but one with a blood-pressure that could be considered above normal for the individual,—systolic, 178; and diastolic, 115,—the only one recorded in which the systolic was above 150. The average in the series was systolic, 132; diastolic, 85. The average of age of users is 33½ years; the oldest 61, the youngest 22 years. Fifteen of the twenty-five used alcohol, but four only in more than slight or moderate amounts. Thirteen either chewed or smoked tobacco. A few used from two to three boxes of the snuff a week; the majority, a box or more a day over periods from a year to twenty years, the average duration being six or seven years.

The chronic snuff habitué does not consult the physician to be cured of the habit, but because of impaired organic function. In none of the patients I have seen was the history of the use

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of snuff elicited except by direct questioning. They did not regard snuff as tobacco. The following are abstracts of rather typical cases:

CASE 141,168.—Examination September 14, 1915. C. A., a man, aged 40 years; born in Norway; diamond-driller in iron mine. He had pain in the head, dizziness, etc.; gastric trouble off and on for six or seven years; no vomiting; no sourness or gas; heart-action very irritable; constipation. For three or four months he had "imagined" things, and was afraid in the dark. His face and general appearance indicated deficient mentality. It was difficult to obtain a history. His words were muttered; cerebration, slow and indifferent. He had used one or more boxes of snuff a day for seven or eight years. There was scarring and ulceration of the mucous membrane under the upper lip, where he carried his snuff pellet. (Fig. 1.) A couple of weeks after he had been told the cause of his trouble and advised to stop the use of snuff, he wrote that he was unable to sleep and asked for medicine.

CASE 141,541.—Examination September 20, 1915. O. M. A., a man, aged 47 years; born in Norway; city salesman for wholesale house. He complained of "shooting pains all over, dizziness and stiff legs, indigestion, rapid heart, and nervousness and weakness." He stated that he had used snuff for five or six years; and in large amounts when drinking in order to allay nervousness. It sometimes made him feel good at first, but dopy later. After he began to take the "Copenhagen" snuff he used less tobacco. He started the habit by someone having him try it.

A box of "Copenhagen" a day equals about thirty or forty small drinks of whiskey a day, to the habitual user. This snuff has a flavor different from other varieties, and is stronger.

There is much similarity in the symptoms of chronic poisoning in these cases. The snuff heart, the snuff indigestion, and, one might say, the snuffed mind show the serious effects of the persistent use of the drug. Ladd<sup>1</sup> quotes statements from a number of physicians to whom he wrote. They all severely condemn its use and believe the snuff to be doped. Their observations record the irritable heart, which Hielscher<sup>2</sup> refers to as the "Copenhagen heart," precordial pain, muscular weakness, cold sweats, eyes dull and stupid, destruction of the mental and moral fibre until self-respect and honesty are gone, and the animal traits are in full force. Many boys from eight to eighteen years of age are said to be users. In an effort to combat what Ladd<sup>1</sup> calls "the greatest evil of the day," North Dakota has passed an anti-snuff law preventing the sale of snuff in the state.

"Copenhagen" snuff and "Right Cut" chewing tobacco are produced by the Weyman-Bruton Company. Each box has a stamped date. The users will not purchase old snuff, and the dealers do not sell it after it has overrun the date

limit on the packages. This snuff has a peculiar odor, and is a moist, brownish substance, which soon dries to a powder when exposed to air.

Various conjectures have been made as to the presence of the foreign substance which causes the intoxicating effect. Physicians who have observed the effect believe it contains "dope" of some sort; but whether or not "Copenhagen" snuff is "doped" within the scope of the law, makes little difference so long as the use of the mixture produces such apparent harmful effects. To be convinced of the increase in its use and of the evil effects, one has only to talk to the dealers, who state that there is an increasing demand and that they sell it chiefly to the laboring classes, for example, miners, lumberjacks, and farmers. One dealer in our own city said that he could spot nine out of ten of the snuff users when they came in the door. He had sold fifty boxes to one young farmer the day before.

#### CONCLUSIONS

The use of snuff seems to be on the increase. There is sufficient evidence for the conclusion that its use in appreciable amounts undermines the physical, moral, and mental health.

The nervousness, impaired health, and undermined moral fiber is a direct economic loss, and also it may be a factor in imparting to progeny a lowered resistance to the use of tobacco, drugs, alcohol, etc.

The manner in which the snuff is passed from one individual to another, the lack of external signs of its use, and the lack of information in regard to its deleterious effects, together with the active selling campaigning, are bound to cause the habit to spread and increase.

The scarring and ulceration of the gingival and buccal mucous membranes with the long-standing chronic irritation, make these ulcerations in the snuff chewers probable sources of future trouble in which malignancy may be considered. It is to be hoped that more general recognition and publicity of the serious effects of the use of snuff will result in antilegislation to drive it from this state, and all other states where it has a foothold; and also that publicity will serve as a warning to other states not yet similarly affected.

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JANUARY 15, 1916

## FREE ANTITOXIN IN MINNESOTA

Apparently some physicians in Minnesota are not familiar with the fact that they are entitled to free antitoxin for use among their patients. The State Board of Health is constantly receiving letters from places where there is an antitoxin station, asking for free antitoxin.

About one hundred and twenty free antitoxin stations have been established throughout the state. These stations are under the control of the health officers of these villages and cities. There is at least one station in every county, usually at the county-seat, and in some counties there are several stations.

During the first three months that this free antitoxin was available in Minnesota, only 230 one-thousand-unit packages, 118 three-thousand-unit packages, and 133 five-thousand-unit packages, making a total of 481 packages, were used.

It is important that physicians should make use of this free antitoxin. Of course, when they use it they cannot charge for the antitoxin, but they can charge for services in administering it. The purpose of this free antitoxin is to encourage its prompt use, with the hope that the present mortality from diphtheria may be reduced.

Apparently, a large percentage of the free antitoxin has been used by the health officers. All

physicians should understand that they have the right to use it; and all they have to do is to ask for it of any health officer in charge of a distributing station. A receipt in duplicate, giving name, age and residence of the person on whom the serum is to be used, must be filled out and signed by the physician who receives antitoxin from a health officer. The original copy of the receipt must be sent by the health officer to the State Board of Health. The duplicate copy is kept by him for his record.

If the supply of antitoxin at any station is exhausted, a fresh supply can be secured from the State Board of Health on short notice.

## THE PRESENT EPIDEMIC OF INFLUENZA

In looking over Cruikshank, who illustrated a semihumorous volume in 1847, we found a reference to epidemics of influenza, which were evidently treated very much as we treat our cases at the present time,—that is, by hot baths, laxatives, and rest; but the main reliance was laid upon rest. The same rule holds over to the present day,—that the benefits derived from rest are greater than from almost any form of medication.

So far locally a number of cases have developed into pneumonia; and the widespread epidemic, which reaches from the Atlantic to the Pacific, has been the cause of many deaths from pneumonia. It has been shown, however, that a great many of the pneumonias are complicated with either cardiac or renal diseases; and the probabilities are that the power of resistance of the individual who contracts pneumonia, and dies therefrom, is very much lowered from some cause or other, and one is inclined to think that the most common cause is overwork, together with hitherto unsuspected cardiac and renal disorders. It is not necessary that every patient should present marked evidence of albumin and casts in the urine to prove that kidney disease is present. It is the man with the occasional evidence of renal disorder that proves the easiest victim. These cases, as a rule, are commonly fatal, and only those whose resisting power is good, and who are free from arterial complications, overcome the attack of pneumonia.

In view of our recent progress in vaccine therapy, it would seem as if some bright mind would discover an anti-influenzal serum. Much work along this line has been done in Kansas City and St. Louis, but the work is still in the experi-



mental stage. There is no reason, however, to doubt the possibility of a serum which will take care of either the influenza or la grippe.

The most discomforting accompaniment of influenza is the extreme tire. Many patients show very little rise in temperature, except perhaps for a few hours. Others have a sharp rise, followed by a sudden descent; and after the second or third day a subnormal temperature is not infrequent, but, in spite of this, the exhaustion-symptoms are continuous, lasting from one to two weeks. This is the one condition to combat in the way of treatment; and the best remedies discovered so far, are those of complete rest in bed, associated with either a hot or warm bath of from eight to fifteen minutes, according to the individual tendencies, a laxative of some sort, and the administration of wholesome doses of strychnine.

The various new coal-tar products have been used mainly without discrimination, and, as a whole, they do little or no good. These patients are sweat with difficulty, and they do not get the benefits from aspirin, phenacetin, or their allied products that we commonly get in colds. A good dose of Dover's powder, ten grains at night, relieves the average adult from his pains and aches. Following this, strychnine, in one-twentieth grain doses, should be given once in four hours.

Every patient who has influenza or la grippe should be kept in bed until he is ready to get out, that is, until he feels inclined to get out. Then the disease is practically over; and under ordinary circumstances the patient is more or less immune from further recurrences. Climate seems to make no difference as to the form or character of the difficulty. It is found in Florida and California, as well as in Minnesota and Canada.

Another complication that is found, is a latent cough, which lasts a variable length of time, and is apparently not improved by medication. It is rather amusing to note the number of cough remedies that have been suggested; and it is equally amusing to find someone explaining why they do not do any good. A cough medicine which contains a sufficient amount of opiate is naturally quieting; but the average cough medicine goes directly from the mouth to the stomach, and there produces a disorder rather than a benefit, but people like something of this sort, and sometimes it is well to give people what they like. A cough syrup made of bromide of soda, which is really a sedative to the peripheral nervous sys-

tem, is the only thing that can be given with any degree of security.

The present epidemic is not limited entirely to the mucous membrane of the nose and throat, but it has been found to involve the mucous membrane of the stomach and intestines, bladder, and rectum, so that it is practically a general mucous-membrane involvement.

#### DR. CHARLES S. CRANE

It is with regret that we record the death of Dr. Charles S. Crane of Grand Forks, North Dakota, on December 31st.

Dr. Crane was born in Ontario in 1862, and emigrated to North Dakota when a mere lad. He graduated from the Medical Department of the University of Michigan in 1889, and later spent a year in Chicago, where he studied his specialty,—eye, ear, nose, and throat. With the exception of one year in Milwaukee, Wisconsin, his medical work was in Grand Forks, North Dakota.

Dr. Crane was one of our well-known physicians and enjoyed a lucrative practice. In his State Association he held the position of treasurer for a number of years, and was its Delegate to the American Medical Association for several successive terms.

Dr. Crane was a gentleman of pleasing personality, kindly disposition, and ready wit. Stricken early with a malady that handicapped him through life, he kept his troubles to himself, made a valiant and heroic fight against the disease, and to the very last bravely faced the inevitable with a smile. His remains were laid to rest in Memorial Park, Grand Forks.

## BOOK NOTICES

WHAT TO EAT AND WHY. By G. Carroll Smith, M. D., Boston Mass. Second edition, thoroughly revised. Octavo of 377 pages. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$2.50 net.

Human bodily needs,—protein, carbohydrates, and fat,—have been so accurately measured that mechanical feeding seems possible. The great variety of food offered, points the way to the necessity of individual selection. The resultant encyclopedic works on food values, with their extensive tables, while necessary, are confusing. The hungry man is willing to forego some varieties, rather than spend his entire meal hour reading a twenty-page menu booklet.

This volume, the second edition, has demonstrated its place in simplifying dietetics.

The new chapter on rheumatism is an important contribution to the new conception of this complex problem.

The book is worth having and reading, and will repay frequent reference in the daily work of the physician.

—DONALDSON.

## REPORTS OF SOCIETIES

### MINNESOTA ACADEMY OF MEDICINE

The December meeting of the Academy was held at the usual place, Wednesday evening, December 8, the president, Dr. Dunning, presiding.

Dr. Corbett showed an instrument, of his own invention, for the intratracheal administration of anesthesia, that he had successfully used in several cases.

Dr. Geist, who had also invented an instrument, showed the Academy one that registered in pounds and ounces the amount of pressure made on a given point when trying to locate spots of sensitiveness.

Dr. William Lerche reported a case of intra-thoracic resection of the esophagus in a man fifty-four years of age. The details of the operation will be given later.

The first scientific paper of the evening was by Dr. Geo. Douglas Head. His subject was "Atypical Types of Raynaud's Disease." The paper was discussed by Drs. Riggs and Dunning.

Dr. Oscar Owre presented his inaugural thesis, "The Removal of Foreign Bodies from the Bladder." He showed many of the instruments used. The paper was accompanied by numerous illustrations. Drs. Ritchie, Adair, Benjamin and Cook entered into the discussion of the paper.

The following report was made by Dr. Head at the November meeting of "A Case of Dyspituitarism Associated with Multiple Angiomata of the Skin and Scrotum":

Carl L., 26 years of age, Swedish, single, farmer, was admitted into the University Hospital October 27. He complained of pains in the hands, feet, and head.

His family history was negative. Four brothers and three sisters living. Denied venereal disease. Used tobacco, and drank moderately of beer and whiskey. His past history was of no importance.

The present symptoms of which the patient complained dated back to an illness which he had at eight years of age, associated with fever. Following this sickness he began to have severe pains in his hands and feet. He recovered from this illness. About one year later he was in bed for six weeks with fever, pain, and swelling in the hands and feet. It is since this second illness that the patient tells of the pains of which he now complains. He has suffered, off and on, for the last eighteen years with these pains, especially in the fingers and toes. The pains are deep and boring in character, and come and go without any regularity.

The telangiectases upon the skin, which are the peculiar and marked clinical feature of this case, appeared when he was about fourteen years of age. He noticed them first upon the penis and scrotum, later upon the inside of the thighs, and about one year later they began to appear upon the outer surfaces of the arms, above and below the elbows and also upon the back and abdomen. More of these hemorrhagic spots are appearing all the time. None can be seen upon the mucous membranes of the lips, inside of the mouth or nose.

On physical examination the patient's features are coarse and prominent and present many acromegalic features including slanting forehead, prominent frontal regions, thick lips, spaced teeth, and high palatine arch. The skin shows a remarkable development of angiomata on various parts of the body. These are present upon the face, upper chest, upper abdomen, upper part of the back, and inner surfaces of the arms and legs. They are present in exceptionally large numbers over the back from the angles of the scapulae down to the buttocks and over the lateral surfaces of the chest, over the hips and lower abdomen, and along the transverse umbilical line downward upon the penis and scrotum. Many of these are of pin-point size. The largest are raised above the skin, and can be plainly palpated. In many places over the scrotum and penis they are present in enormous numbers, and so thickly set as to cover almost every part of the skin.

Blood-examination was normal, the Wassermann test negative, sub-cutaneous tuberculin test negative, spinal fluid (Nonne test) faintly positive, Wassermann test of spinal fluid negative. The sella turcica measured 12 mm.

Pathological diagnosis of sections removed, angiomata of the skin. Clinical diagnosis, dyspituitarism with multiple angiomata of the skin.

Photographs of the patient, water-colored drawings, and a colored photograph showing the remarkable distribution of the angiomata, were exhibited.

FRED E. LEAVITT, M. D., Secretary.

## NEWS ITEMS

Dr. W. C. Diedrich, of Dantube, has moved to Waverly.

Dr. A. M. Adsit, of Hastings, is spending the winter in California.

Dr. Arthur W. Eckstein has left Holdingford, and located in Comfrey.

Dr. Frank E. Weed has moved from Lankin, N. D., to Park River, N. D.

Dr. L. M. Meyers, of Marion, N. D., is taking postgraduate work in Chicago.

Drs. John T. Rogers and Alexander R. Colvin, of St. Paul, have dissolved their partnership.

Dr. Julian F. DuBois, a graduate of Rush, has associated himself with his father in Sauk Center.

Dr. O. M. Haugan, of Fergus Falls, is spending several weeks in Chicago for postgraduate work.

Dr. O. R. Spalding, of Chicago, has become a member of the staff of the McIntyre Hospital of Virginia.

Dr. Luther Rexford, of Minneapolis, was married on December 21 to Mrs. Pearl David, also of Minneapolis.

A Minot, N. D., newspaper says the first "twilight" baby of North Dakota was born in that city last month.

Dr. J. C. Corrigan, of Spooner, Minn., has taken over the practice of the late Dr. F. H. Stuart, of Baudette.

Dr. James I. Tibbetts, a resident of Wayzata for thirty-three years, died in Portland, Ore., on January 5 at the age of 68.

The retailers of groceries and other foods in Minneapolis are to be licensed, and sanitary requirements will be demanded of them.

The sale of Red Cross Seals this year in Minnesota amounted to \$26,000, which will net the Public Health Association a handsome sum.

Dr. L. G. Rowntree has begun his work in the Medical Department of the University of Minnesota as Dean of the Department of Medicine.

Dr. H. C. Bumpus, Jr., an interne in St. Mary's hospital at Rochester, was married on December 29 to Miss Helen McBurnie, of Winoona.

The management of the Minneapolis smallpox quarantine hospital will hereafter be under the Board of Charities and Correction, instead of under the City Health Department, as heretofore.

Dr. Kenneth Taylor, of St. Paul, has returned from Europe, where he has been since the beginning of the war. Dr. Taylor's discovery of a remedy for the treatment of the gas bacillus is known throughout the world.

The Watonwan County Society held its annual meeting in St. James in December, electing officers for 1916 as follows: President, Dr. Albert Thompson, St. James; vice-president, Dr. Griner, St. James; secretary-treasurer, Dr. B. H. Haynes, St. James.

Dr. Clarke S. Smith, of Bozeman, Montana, has returned from France, where he spent six months in the English medical corps stationed near Ypres. The hospital in which he worked treated over 20,000 cases during the six months he was there.

A training-class for school nurses will be started at the St. Paul City Hospital under the direction of Drs. A. B. Ancker and E. A. Meyerding. Under this plan the undergraduate nurses of the Hospital will each receive the special training needed by a school nurse.

The American College of Surgeons has secured in voluntary subscriptions from its members \$500,000 for an endowment fund, the income of which will be used to advance the purposes of the College, especially in gathering and disseminating useful information.

The Blue Earth County Society held its annual meeting last month at Mankato. New officers for 1916 were elected as follows: President, Dr. A. F. Klemp, Mankato; vice-president, Dr. J. S. Merrill, Amboy; secretary-treasurer, Dr. A. J. Wentworth; delegate, Dr. J. W. Andrews.

The Western Medical Society of Montana, formerly the Missoula County Association, held its annual meeting last month at Missoula, and elected the following officers: President, Dr. Edgar F. Dodds; vice-president, Dr. W. E. Shea; secretary-treasurer, Dr. James J. Flynn. The Society has fifty members.

The Sixth District Society of North Dakota held its annual meeting at Bismarck last month. The following were elected officers for 1916: President, Dr. G. A. Mathews, Napoleon; vice-president, Dr. H. O. Altnow, Mandan; secretary-treasurer, Dr. W. H. Bodenshtab, Bismarck; delegate, Dr. A. M. Brandt, Bismarck.

The Hennepin County Medical Society elected the following officers for 1916: President, Dr. J. G. Cross; vice-president, Dr. A. S. Hamilton; delegates, Drs. J. C. Litzenberg, J. W. Bell, L. A. Nippert and S. R. Maxeiner. Dr. Farr, the retiring president, recommended that a pension fund be started to care for physicians unable to work and in need of help.

The Red River Valley Society held its annual meeting on December 18, at Crookston. Papers were read by Dr. H. E. Nelson, Crookston, and Dr. F. W. Biggs, Moorhead. Officers for 1916 were elected as follows: President, Dr. W. S. Anderson, Warren; vice-president, Dr. J. F. Norman, Crookston; secretary-treasurer, Dr. F. M. Dryden, Crookston; delegate, Dr. Theodore Bratrud, Warren.

Dr. Charles S. Crane, of Grand Forks, N. D., died on December 31st, at the age of 54. He was a graduate of Michigan, and began to practice



in Grand Forks upon graduation, and continued there, with the exception of one year spent in Racine, Wis., until his death. He was long prominent in medical circles in North Dakota, having been treasurer of the State Association for some years, and was twice a delegate to the A. M. A. He was greatly beloved as a man, inside and outside of medical circles.

The Glen Lake Sanatorium for tubercular patients was opened last week. It was built by Hennepin County with the usual State aid. It cost \$100,000, and will accommodate fifty patients. It opened with eight, but will soon fill up. Dr. H. O. Collins, of the Minneapolis city hospital, is the superintendent, and Dr. Walter J. Markley, of Hopewell Hospital, is the visiting physician. There will be close co-operation between the Glen Lake Sanatorium and Hopewell Hospital; and splendid results may be expected.

Dr. M. O. Opegard, formerly of New London, has located in Minneapolis with offices in the Physicians' and Surgeons' Building. He has just returned from the East, where he spent several weeks in clinical study.

Dr. L. S. B. Robinson has resigned as assistant superintendent of the Minnesota State Sanatorium to accept a position as superintendent of the Nebraska State Sanatorium at Kearney, Neb.

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#### OFFICE HOURS FOR RENT

Desirable office hours in large suite in Donaldson Building, Minneapolis. Address 293, care of this office.

#### WANTED, LOCUM TENENCY

Beginning March 1st, for any length of time not to exceed six months, by regular physician, thirty-two years of age, 1914 graduate; completed an eighteen-months' internship at a large county hospital Dec. 10th. Can give best of reference. Am doing locum tenency work now. Prefer a small town with little or no competition.

#### ASSISTANT WANTED

I desire an assistant in my eye, ear, nose, and throat practice. A good proposition for the right party. Address 295, care of this office.

#### PHYSICIAN WANTED

We need a good physician and surgeon in this rapidly growing town with large progressive country contributory. Scandinavian preferred. Address Secretary of the Commercial Club, Goodridge, Minn.

#### EXCHANGE—LAND FOR AUTOMOBILE

I have 120 acres of choice hardwood timber land in southern Cass County, Minnesota, on a state road and near beautiful lakes to exchange for first-class five-passenger car of late model. Value of land \$16 per acre; mortgaged for \$750 at 7%. Mortgage held by bank. Address G. M. Sewall, M. D., Cuyuna, Minn.

#### ASSOCIATE WANTED

A physician in a live western North Dakota town wishes a young surgeon and general physician as an associate. Address 292, care of this office.

#### PARTNER WANTED

I desire an assistant, a partner, or someone to purchase my practice in a good town of 1,800 in Minnesota. Must be a French Catholic. Address 294, care of this office.

#### ELECTRICAL EQUIPMENT FOR SALE

At a bargain, one 220 A. C. Scheidel-Western 10 K-W x-ray transformer. One 220 D. C. 12 K-W Victor transformer. Both machines are in excellent condition. Address Ziola Jackson X-Ray Coil Co., 321 Commercial Bldg., St. Paul.

#### AUTOMOBILE BARGAIN

Chevrolet Roadster, 1915 model, used only 4 months. electrically equipped, 8-day clock, trunk, extra tires and rim. Cost \$925 as it stands; will sell for \$575. Car guaranteed in perfect condition. Phone McDonald Pharmacy, Midway 2158, St. Paul.

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#### DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	9															
Albert Lea	4,500	6,192	9													1		
Alexandria	2,681	3,001	7	2														
Anoka	3,769	3,972	7													2		
Austin	5,474	6,960	4		1													
Barnesville	1,326	1,353	2														1	
Bemidji	2,183	5,099	7												1			
Benson	1,525	1,677	1															
Blue Earth	2,900	2,319	2															
Brainerd	7,524	8,526	6			2										1		1
Breckenridge	1,282	1,840	0															
Canby	1,100	1,528	1															
Cannon Falls	1,239	1,385	2															
Chaska	2,165	2,050	2															
Chatfield	1,426	1,226	0															
Cloquet	3,074	7,031	5		1			1										1
Crookston	5,359	7,559	5														1	1
Dawson	962	1,318	4	2											1			
Detroit	2,060	2,807	4															
Duluth	52,968	78,466	56	9	1	6	0	0	0	0	0	0	0	1	2	4	0	3
East Grand Forks	2,077	2,533	6															
Ely	3,572	3,572	3		1													
Eveleth	2,752	7,036	7		1	1						1			1	1		
Fairmont	3,440	2,958	1															
Faribault	7,868	9,001	3															
Fergus Falls	6,072	6,887	5	1														
Glencoe	1,788	1,788	0															
Glenwood	1,116	2,161	1															
Granite Falls	1,454	1,454	0															
Hastings	3,811	3,983	5															
Hutchinson	2,495	2,368	3															
International Falls		1,487	4			1									1			
Jordan	1,270	1,151	1				1											
Lake City	3,142	3,142	3													1		
Le Sueur	1,937	1,755	1															
Little Falls	5,774	6,078	7													1		2
Luverne	2,223	2,540	2															
Madison	1,336	1,811	3															
Mankato	10,559	10,365	7	1														1
Marshall	2,088	2,152	1														1	
Melrose	2,591	2,591	1				1											
Minneapolis	202,718	301,408	290	30	6	21	4	0	0	0	1	0	0	2	9	31	1	20
Montevideo	2,146	3,056	0												1			
Montgomery	979	1,267	9															
Moorhead	3,730	4,840	9	1			1									2		
Morris	1,934	1,685	3		1													
New Prague	1,228	1,551	1			1												
New Ulm	5,403	5,648	12													3		
Northfield	3,210	3,215	3													1		1
Ortonville	1,247	1,774	4															
Owatonna	5,561	5,658	4															2
Pipestone	2,536	2,475	0															
Red Lake Falls	1,666	1,666	2									1						
Red Wing	7,525	9,048	6													2	1	
Redwood Falls	1,661	1,666	0															1
Renville	1,075	1,182	0															
Rochester	6,843	7,844	33									1			1	8		
Rushford	1,100	1,911	0															
St. Charles	1,304	1,159	2													1		
St. Cloud	8,663	10,600	14	1				1				1		2		1		1
St. James	2,102	2,102	3															
St. Paul	163,632	214,744	208	20	3	23	2	1	0	0	0	1	0	1	6	14	1	8
St. Peter	4,302	4,176	2															
Sauk Centre	2,154	2,154	4															
Shakopee	2,046	2,302	1															
Sleepy Eye	2,046	2,247	1															
South St. Paul	2,322	4,510	5				1				1							1
Staples	1,504	2,558	1															
Stillwater	12,318	10,198	9			1										1		
Thief River Falls	1,819	3,174	1															
Tower	1,111	1,111	1															
Tracy	1,911	1,826	2															
Two Harbors	3,278	4,990	6	1														1
Virginia	2,962	10,473	9	1								1				1		
Wabasha	2,622	2,622	7			1									1		2	
Warren	1,276	1,613	5	1														2
Waseca	3,103	3,054	1															
Waterville	1,260	1,273	0															
West St. Paul	1,830	2,660	3															
Willmar	3,409	4,135	5			1												
Winona	19,714	18,583	12	2	1											1		
Winthrop	813	1,043	0															
Worthington	2,386	2,385	2															

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian .....	1,258	1,112	1															1
Aitkin .....	1,719	1,633	1															1
Akeley .....			1															
Appleton .....	1,184	1,221	1															
Belle Plaine .....	1,121	1,204	2	1		1												
Biwabik .....		1,690	2															
Bovey .....		1,377	1															1
Browns Valley .....	721	1,058	2															
Buffalo .....	1,040	1,227	0															
Caledonia .....	1,175	1,372	1															
Cass Lake .....	546	2,011	0															
Chisholm .....		7,684	9			2												
Coleraine .....		1,613	3					1							1			
Delano .....	967	1,031	2															
Farmington .....	733	1,024	1															
Fosston .....	864	1,055	0															
Frazee .....	1,000	1,645	1															
Grand Rapids .....	1,428	2,239	0															
Hibbing .....	2,481	8,832	5	1				1								2		
Jackson .....	1,756	1,907	1						1									
Janesville .....	1,254	1,173	0															
Kenyon .....	1,202	1,237	0															
Lake Crystal .....	1,215	1,038	0															
Litchfield .....	2,280	2,333	5			1												
Long Prairie .....	1,385	1,250	1															
Madelia .....	1,272	1,273	2	1														
Milaca .....	1,204	1,102	1	1														
Mountain Lake .....	959	1,081	3	1											1			1
Nashwauk .....		2,080	2															1
North Mankato .....	939	1,279	1															
North St. Paul .....	1,110	1,404	0															
Osakis .....	917	1,013	1															
Park Rapids .....	1,313	1,850	5		1	1												
Pelican Rapids .....	1,033	1,019	0															
Perham .....	1,182	1,376	0															
Pine City .....	993	1,253	0															
Plainview .....	1,038	1,175	1	1														
Preston .....	1,278	1,193	4		1	1											1	
Princeton .....	1,319	1,555	4														1	
St. Louis Park .....	1,325	1,743	0															
Sandstone .....	1,189	1,818	0															
Sauk Rapids .....	1,391	1,745	4			1												
South Stillwater .....	1,422	1,343	5	2														
Springfield .....	1,511	1,482	3	1														
Spring Valley .....	1,770	1,817	4			2												1
Wadena .....	1,520	1,820	2															
Wells .....	2,017	1,755	1															
West Minneapolis .....	2,250	3,022	6	1													1	
Whetson .....	1,132	1,300	0															
White Bear Lake .....	1,288	1,505	2	1													1	
Windom .....	1,944	1,749	0															
Winnebago City .....	1,816	2,555	*															
Zumbrota .....	1,119	1,138	3														1	

## STATE INSTITUTIONS

Anoka, Asylum .....	1	1																
Faribault, School for Blind .....	0																	
Faribault, School for Deaf .....	0																	
Faribault, School for Feeble Minded .....	7	2		1														
Fergus Falls, Hospital for Insane .....	9													1				
Hastings, Asylum .....	1																	
Minneapolis, Soldiers' Home .....	11			1														
Owatonna, School for Dependent .....	0																	
Red Wing, State Training School .....	0																	
Rochester, Hospital for Insane .....	7	1																
Sauk Centre, Home School for Girls .....	0																	
St. Peter, Hospital for Insane .....	8	1		1														
St. Cloud, State Reformatory .....	0																	
Stillwater, State Prison .....	1																	

## OTHER PARTS OF STATE

	681	33	5	40	6	3	0	1	7	2	0	1	31	59	1	67
Total for state .....	1677	121	23	111	16	8	0	1	11	6	0	13	59	147	5	123

\*No report received. REGISTRAR not doing his duty.  
135 stillbirths not included in above totals.



# 5 Million Oat Lovers Won This Way

---



We have won millions of oat lovers, all the world over, by making an extra grade.

It is made from queen oats only—just the biggest, plumpest grains. We get but ten pounds from a bushel.

The flakes that result are large and luscious. They are fragrant and flavory. They make the oat dish a luxury.

Every package marked Quaker Oats contains this grade alone. Yet it costs no extra price.

## Quaker Oats

*Large, Luscious Flakes*

To induce perfect cooking, we supply our users with a cooker made to our order. We offer it in every package. So far we've supplied it to 700,000 homes.

*Regular Package, 10c*

*Except in Far West and South*

## The Quaker Oats Company

Chicago

(1170)

EFFERVESCENT

# SALINOS

(SAL-NOS)

SALINE-CATHARTIC

## "A Perfect Saline for Sensitive Stomachs"

It is **PALATABLE**

It is freely and wholly soluble in **ICE-COLD WATER**

It is primarily an **ELIMINANT**

It is **NOT** a *harsh* hydragog but

It is a *decided* corrective in **OBSTINATE CONSTIPATION**

*Especially* indicated in faulty elimination and **AUTO-INTOXICATION**

SALINOS is the *perfect* blending of—

Mag. Sulph.	Sod. Sulph.	Sod. Phos.
Sod. Chlor.	Sod. Bi-carb.	Ac. Citr.
Ac. Tartar	Saccharin (1-80 gr. per dram)	

(Six-ounce unlettered bottles only)

Samples on Request

THE

# SALINOS

COMPANY  
MINNEAPOLIS

## Live virulent organisms retard immunization.

Dead or devitalized organisms rapidly produce immune bodies. **PROPHYLACTIC IMMUNIZATION** has demonstrated this fact; Therapeutic Inoculation is doing so in **ACUTE** and **CHRONIC INFECTIONS**. Greater and more rapid immunity can be established with a vaccine than from an infection.

If you have a case of **ACUTE INFECTION** give it an injection of **VACCINE** in some healthy tissue which will be stimulated without deleterious results to antibody production.

We have had extensive experience with severe cases and may be of service to you.

## G. H. Sherman, M. D.

*Manufacturer of Bacterial Vaccines*

3334-36 E. Jefferson Avenue, Detroit

LITERATURE ON REQUEST

## After Diagnosis has been made Treatment is Simplified

---

*We aid physicians in  
making this Diagnosis*

---

We send gratis, upon request, sterile containers and complete instruction, for the collection of all specimens, such as urine, blood, tissue, stomach contents, smears, culture media for autogenous vaccines, etc.

Reports from this laboratory are accurate, reliable and dependable.

### A FEW ITEMS FROM OUR FEE LIST:

**Wassermann Test,** **\$5.00**

We do the classical test. Any of the various modifications made upon request without charge.

**Complement Fixation Test for Gonorrhea, \$5.00**

We use a polyvalent antigen.

**Autogenous Vaccines,** **\$5.00**

with the *exciting organism* isolated and identified. Cultured *aerobically* and *anaerobically*. Put up in ampules, in graduated doses, or in a single 20 c.c. container.

**Examination of Pathological Tissue** **\$5.00**

---

**National Pathological Laboratory, Inc.**

Chicago,  
5 South Wabash Ave.

New York,  
18 East 41st Street

## PUBLISHER'S DEPARTMENT

### SPECIAL COURSES OF THE CHICAGO POLICLINIC AND THE POST-GRADUATE

The special courses of the Chicago Polyclinic and Post-Graduate begin, respectively, on Monday, April 3, and Monday, May 1. The spring courses are exceedingly popular; and they will be better this year than ever before. No doubt, a good many Northwestern physicians will take one or both of these courses this year.

### "DIAGNOSIS OF GASTRO-INTESTINAL DISEASES"

Messrs. Reed & Carnrick have issued an edition of the above booklet bound in cloth for permanent keeping. It is an admirable short résumé of the subject it treats, illustrated with a number of high-grade color plates, which are a great aid to diagnosis.

One can scarcely find this important subject so well and clearly treated, even in the best text-books.

We believe the booklet is sent free to any physician requesting it.

### THE CALUMET BAKING POWDER

The campaign of education and publicity recently made in the Twin Cities by the Calumet Baking Powder, convinced many physicians that this baking powder is in every way worthy of unqualified recommendation, and that it has certain qualities that make it especially desirable for hospital use and equally so in the family of the physician whose hours are irregular, and do not readily permit him to sit down to the table to eat the hot baking powder biscuit that cannot wait his convenience. Then, too, the price of this baking powder is the right price, and saves enough in the course of the year so that the householder or the hospital manager may well consider it.

### THE RIVER PINES SANATORIUM

A distinguished student of tuberculosis said: "We must care for the consumptive in the right way and in the right place until he is cured, instead of in the wrong way and in the wrong place until he is dead."

And all students of the subject say: "The right way and the right place are found in the well-conducted sanatorium." It might be added, further, that the sanatorium needs to be in the *right* place.

Such a *way* and *such* a place are found at River Pines Sanatorium, and the sanatorium is also at the *right* place, Stevens Point, Wisconsin.

If winter is not just the *right time* to send the tubercular patient away from home, it is unquestionably the *wrong time* to keep him at home, for in the winter he most needs sanatorium care.

### FRANK S. BETZ COMPANY

The white-enamel outfit for a physician's office seen in the advertisement of the above company on another page, is indeed very attractive; and the price is surprisingly low, with deferred-payment terms that make the possession of the outfit an "unfelt affair." The outfit is worth having from many standpoints, especially because of its convenience, its comfort, its sanitary quality, the gratification one gets from the possession

of an up-to-date outfit, and—shall we say it?—its advertising value to the office it graces. One hundred dollars in one payment, or eleven ten-dollar payments, gets this 9-piece enamel outfit.

### CORYZA—ACUTE NASAL CATARRH

This condition is manifested by a local congestion of the nasal mucous membrane, with an infiltration of serum into the tissues and later an exudation on the part of the mucous membrane.

The local treatment calls for a remedy capable of relieving the engorgement by exosmosis, which can never be achieved by the use of acid or astringent preparations.

The use of Glyco-Thymoline in these cases purges the mucous membrane, relieving the congestion, and then by stimulating the local capillary circulation to renewed activity prevents a re-engorgement.

### WOODWORTH TROUBLE-PROOF TIRES

A new automobile tire that appeals strongly to Doctors has recently been put on the market by the Leather Tire Goods Company of Niagara Falls, N. Y. This tire is called the Woodworth Trouble-Proof Tire and is guaranteed against punctures and blow-outs for 5,000 miles. The tire is made of the very best combed Sea Island cotton with pure-gum cushion and a very high grade and exceptionally tough rubber compound. It has incorporated in it a strip of chrome tanned leather which prevents punctures without stiffening the tire so as to make it ride hard or over-heat. It is claimed that on light machines these tires will average at least 10,000 to 15,000 miles of service so that the user of these tires not only has freedom from tire troubles but his cost per mile for tires is much lower than with ordinary tires.

A booklet entitled "Trouble Savers for Tire Users" will be sent free to anyone mentioning this paper.

### CHANGE OF NAME FROM DR. BROUGHTON'S SANITARIUM TO DR. WEIRICK'S SANITARIUM

It will be noted that in this issue Dr. Broughton's Sanitarium advertisement has been changed to Dr. Weirick's Sanitarium. This is not a material change, for the management remains the same and the business is being conducted along the same lines as heretofore. This is evidenced by the fact that for eight and one-half years Dr. Weirick has been connected with the institution—five years as Assistant Superintendent, and the remainder as Superintendent. He has now associated with him Dr. W. H. Cunningham, who is a very capable man.

It is interesting to know that of the cases which have been treated here,—that is, drug and liquor addictions,—sixty to sixty-five per cent of the former keep well, and three out of four of the latter "make good."

### BABY'S WELFARE

The Borden Condensed Milk Company has issued, for free distribution among physicians, a 52-page booklet under the above caption, in which the manufacturer deals intelligently with the subject of feeding the baby that must be fed upon a food other than mother's milk.

When a wise man reaches a stream that must be crossed, and finds the bridge gone, he seeks information, it may be, from a near-by farmer, instead of from a bridge engineer, as to how and where it is safest to cross the stream. So when the baby's bridge, mother's



milk, is not obtainable, the wise physician will seek information from all sources as to what substitute may be offered. The manufacturer may be able to give both scientific and practical, or practical-scientific, knowledge worth a great deal even to the trained physician.

"Baby's Welfare" is worth reading, and it can be obtained by sending one's name to the Borden Company, 108 Hudson St., New York City.

#### ST. JAMES HOSPITAL

The opening of St. James Hospital and Sanitarium several years ago was exceedingly auspicious. The policy adopted for its management was the right one; the men at its head and on its staff were experienced and of high standing; the building was a sort of inheritance, and was one no private enterprise could have built for sanitarium purposes, and conditions have made it possible to charge very moderate prices, while furnishing high-grade service.

#### PHYLACOGEN IN PNEUMONIA

Any agent that nearly approaches the specific in lobar pneumonia should be welcomed by the medical profession. Pneumonia Phylacogen is believed to merit that distinction.

In its use, as in that of the various other Phylacogens, observance of certain details of administration may have an important bearing on the results. It may be administered either subcutaneously or intravenously. The first dose should invariably be given subcutaneously. Injections should be made slowly—as slowly as possible, in fact. When injections are made hypodermatically the needle should not be allowed to enter the superficial

fascia or muscular tissue. Certain patients do not absorb Phylacogen, when subcutaneously administered, with sufficient rapidity to produce the desired effect, but respond promptly to small doses given intravenously.

Large initial doses should be avoided.

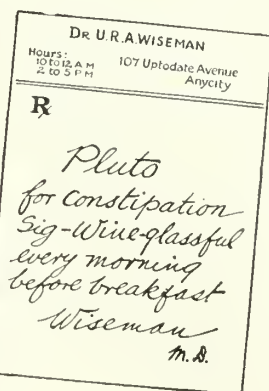
The initial intravenous dose, which should always be preceded by one or more doses subcutaneously, should not be more than  $\frac{1}{8}$  to  $\frac{1}{4}$  c.c. (say 2 to 4 minims). Subsequently the dose may be increased by  $\frac{1}{8}$  to  $\frac{1}{2}$  c.c. each day, according to the general indications, avoiding if possible the production of a marked constitutional reaction.

Pneumonia Phylacogen, supplied in 10-c.c. rubber-stoppered glass vials, is preserved with an antiseptic, and will not deteriorate as a consequence of exposure due to opening the vial.

#### THE PALLID SCHOOL GIRL

In view of the modern methods of education, which force the scholar at top speed, it is not to be wondered at that the strenuous courses of study prescribed for the adolescent girl more than frequently result in a general break-down of both health and spirits. Each winter the physician is consulted in such cases and almost always finds the patient anemic, nervous and more or less devalitized. In most instances a rest of a week or two, together with an efficient tonic, enables the patient to take up her school work again with renewed energy. Pepto-Mangan (Gude) is just the hematinic needed, as it acts promptly to increase the red cells and hemoglobin, and to tone up the organism generally. It is particularly suitable for young girls because it never induces or increases constipation.

## A Practical Prescription



Samples, clinical data and literature sent on request

# PLUTO

Bottled by the FRENCH LICK SPRINGS HOTEL CO., French Lick, Indiana

## Hydroleine

**An ethical emulsion of cod-liver oil without medicinal admixture.**

The manner in which the purest and freshest cod-liver oil is emulsified in Hydroleine, makes it easily digestible. Furthermore, Hydroleine does not offend the taste. Its nutty and distinctive flavor is liked by the most delicate palate, and children take it willingly.

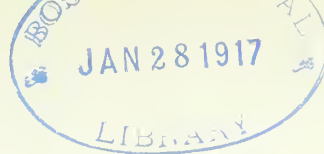
In practice it is markedly utilizable, and is reliably stable. It is effective as a food-fat and possesses superior characteristics.

**In Long-continued Professional Use Hydroleine Has Proved Its Dependability**

THE CHARLES N. CRITTENTON CO.  
115 Fulton Street, New York

Sold by druggists

Sample sent to physicians on request.



# THE JOURNAL-LANCET

The Journal of the Minnesota State Medical Association  
and Official Organ of the  
North Dakota and South Dakota State Medical Associations

PUBLISHED TWICE A MONTH

VOL. XXXVI

MINNEAPOLIS, FEBRUARY 1, 1916

No. 3

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# Minnesota State Medical Association

## DISTRICT AND COUNTY ROSTER

FEBRUARY, 1916

### FIRST DISTRICT

COUNCILOR, C. E. DAMPIER.....Crookston

#### Clay-Becker County Medical Society

Regular meetings, last Monday in January, April, July, and October

Annual meeting last Monday in October

**PRESIDENT**  
Gosslee, G. L.....Moorhead  
**SECRETARY**  
Haight, G. G.....Audubon  
Aborn, W. H.....Dilworth  
Adkins, C. M.....Grygla  
Awty, W. J.....Moorhead  
Barton, E. R.....Frazee

Breitenbach, O. C.....Frazee  
Briggs, F. W.....Moorhead  
Carman, J. E.....Detroit  
Darrow, Daniel C.....Moorhead  
Gunderson, R. M.....Lake Park  
Hagen, Ole J.....Moorhead  
Hoit, Edward E.....Detroit  
Humphrey, E. W.....Moorhead

Kaess, A. J.....Fargo, N. D.  
Larsen, O. O.....Detroit  
Leach, W. D.....Callaway  
Lowe, L. M.....Glyndon  
Meighen, J. W.....Ulen  
Simison, C. W.....Hawley  
Thornby, H. J.....Barnesville  
Verne, V. E.....Moorhead  
Weeks, L. C.....Detroit

#### Park Region District and County Medical Society

Wilkin, Otter Tail, Douglas, and Grant Counties

Regular meetings, second Wednesday in January, April, July, and October

Annual meeting in January

**PRESIDENT**  
Drought, W. W....Fergus Falls  
**SECRETARY**  
Randall, A. M.....Ashby  
Baker, A. C.....Fergus Falls  
Berthold, J. L.....Perham  
Boyd, L. M.....Alexandria  
Boysen, Peter....Pelican Rapids  
Burlingame, C. C.....  
.....Manchester, Conn.  
Burnap, W. L....Fergus Falls

Davis, L. A.....Dalton  
Esser, John.....Perham  
Estrem, C. O.....Fergus Falls  
Freeborn, J. A.....Fergus Falls  
Gilkinson, A. J.....Osakis  
Gosslee, A. F.....Pillager  
Hand, W. R.....Elbow Lake  
Haskell, A. D.....Alexandria  
Haugen, O. M.....Fergus Falls  
Haugen, G. T.....Battle Lake  
Hengstler, W. H.....Osakis  
Hoffmann, J.....Henning  
Keene, L. M.....Alexandria

Kittelson, T. N.....Fergus Falls  
Lee, W. A.....Underwood  
Leibold, H. H....Parker's Prairie  
Lyng, John A.....Fergus Falls  
Meckstroth, C. W.....Brandon  
Naegeli, Frank.....Fergus Falls  
Otto, H. C.....Vergas  
Powers, F. W.....Barrett  
Rothnem, T. P.....Wendell  
Ruud, M. B.....Alexandria  
Serkland, J. C.....Rothsay  
Sherping, O. Th.....Fergus Falls  
Vigen, J. G.....Fergus Falls  
Wray, W. E.....Campbell

#### Red River Valley Medical Society

Polk, Marshall, Pennington, Red Lake, Norman, Kittson, and Roseau Counties

Regular meetings, third Wednesday in March, June, September, and December

Annual meeting in December

**PRESIDENT**  
Anderson, W. S.....Warren  
**SECRETARY**  
Dryden, F. M.....Crookston  
Arneson, Thomas.....Climax  
Bertelsen, O. L.....Crookston  
Blegen, H. M.....Oslo  
Borreson, B. M.....Warren  
Bowers, J. T.....Gully  
Bratrud, O. E.....Fertile  
Bratrud, Theodore.....Warren  
Clair, J. B.....Winsted  
Dahlquist, G. W.....Lancaster  
Dampier, C. E.....Crookston  
Daniels, H. W.....Crookston  
Douglass, J. E., Thief River Falls  
Dunlop, A. H.....Crookston

Froehlich, H. W.....  
.....Thief River Falls  
Gambell, F. H....Thief River Falls  
Guilfoyle, J. P.....Stephens  
Hamel, C. E.....Minneapolis  
Haugseth, Enoch...Twin Valley  
Heimark, J. H.....Hawley  
Hendrickson, J. F., Minneapolis  
Hieber, H. G....Thief River Falls  
Hodgson, H. H.....Crookston  
Holland, A. S.....Argyle  
Hollands, Wm. H.....Fisher  
Holte, H.....Crookston  
Johnson, Geo. L.....Newfolden  
Just, A. A.....Crookston  
Kahala, Arthur.....Erskine  
Kirsch, Ralph L.....Crookston  
Kjelland, J. S.....Crookston  
Lemieux, Israel...Red Lake Falls

Mellby, O. F....Thief River Falls  
Morley, G. A.....Crookston  
Muir, J. B.....Roseau  
Nelson, H. E.....Crookston  
Norman, J. F.....Crookston  
Ohnstad, J. J.....McIntosh  
Olson, O. H.....Erskine  
Overend, K. V.....Kennedy  
Randolph, Wilson.....Crookston  
Risjord, J. N.....Fertile  
Smith, H. W.....Crookston  
Swanson, Cephas.....St. Hilaire  
Tessier, W. O.....Oklee  
Vistaunet, P. S.....Shelly  
Watson, N. M.....Red Lake Falls  
Wattam, G. S.....Warren  
Wilkinson, J. C., Red Lake Falls  
Wood, J. R.....Hallock

#### West Central Minnesota Medical Society

Pope, Stevens, Traverse, and Big Stone Counties

Regular meetings, January, April, July and October

Annual meeting in January

**PRESIDENT**  
Randall, B. M.....Graceville  
**SECRETARY**  
Hulburd, H. L.....Morris  
Bolsta, Charles.....Ortonville

Caine, C. E.....Morris  
Christenson, C. R.....Starbuck  
Eberlin, E. A.....Glenwood  
Else, J. R.....Glenwood  
Ewing, C. F.....Wheaton  
Fitzgerald, E. T.....Morris  
Hayes, James M., Browns Valley  
Karn, B. R.....Ortonville

Leland, J. T.....Herman  
Leuty, Amos.....Morris  
Linde, Herman.....Cyrus  
Oliver, C. I.....Graceville  
Peterson, Henry E.....Chokio  
Ransom, M. L.....Hancock  
Weir, J. D.....Beardsley  
Whittemore, J. G.....Donnelly



## SECOND DISTRICT

COUNCILOR, J. G. MILLSPAUGH.....Little Falls

Aitkin County Medical Society

Regular meetings, first Monday in each month

Annual meeting in December

## PRESIDENT

Graves, Carlton.....Aitkin

## SECRETARY

Ratcliffe, J. J.....Aitkin

Culin, T. J.....Palisade  
Collie, H. G.....McGregor  
Kelly, B. W.....Aitkin

Upper Mississippi Medical Society

Beltrami, Cass, Crow Wing, Hubbard, Koochiching, Morrison, Todd, and Wadena Counties

Regular meetings, January, April, July and October

Annual meeting in January

## PRESIDENT

Desmond, M. A.....Akeley

## SECRETARY

Coulter, Charles F.....Wadena

Allen, F. H.....Staples  
Beise, R. A.....Brainerd  
Berge, P. L.....Brainerd  
Cabot, Verne S.....Lowerville  
Christie, G. R.....Long Prairie  
Corrigan, J. E.....Baudette  
Evert, J. A.....Brainerd  
Farrage, James.....Park Rapids  
Ghostley, Mary.....  
.....International Falls  
Gilmore, R. T.....BemidjiHealy, R. T.....Pierz  
Holst, C. F.....Little Falls  
Holst, J. B.....Little Falls  
Houston, C. A.....Park Rapids  
Ide, A. W.....Brainerd  
Johnson, E. W.....Bemidji  
Johnson, O. V.....Sebeka  
Kenyon, Paul E.....Wadena  
Knickerbocker, Frank H.....Staples  
Koch, John.....Blackduck  
Laughlin, J. T.....Grey Eagle  
Lowthian, G. H.....Fulton, S. D.  
McCoy, J. E.....Ironton  
Marcum, E. H.....Bemidji  
Miller, W. A.....New York Mills  
Millspaugh, J. G.....Little Falls  
Monahan, Robert.....  
.....International FallsPengelly, E. J.....Crosby  
Pierce, C. H.....Menahga  
Roberts, L. M.....Little Falls  
Sanborn, C. R.....Bemidji  
Sewall, Geo. M.....Cuyuna  
Smith, B. A.....Crosby  
Smith, Wm. H.....Cass Lake  
Tanner, A. C.....McGregor  
Thabes, J. A.....Brainerd  
Van Valkenburg, B. F.....  
.....Long Prairie  
Watson, A. M.....Royalton  
Wilcox, F. L.....Walker  
Will, W. W.....Bertha  
Wiltout, I. Geo.....Swanville  
Withrow, M. E.....  
.....International Falls

## THIRD DISTRICT

COUNCILOR, J. L. ROTHROCK.....St. Paul

Ramsey County Medical Society

Regular meetings, last Monday of each month except July and August

Annual meeting in January

## PRESIDENT

Nippert, H. T.....St. Paul

## SECRETARY

Smith, C. E. Jr.....St. Paul

Abbott, J. S.....St. Paul  
Abramovich, J. H.....St. Paul  
Ahrens, A. E.....St. Paul  
Ahrens, A. H.....St. Paul  
Aldes, Harry.....St. Paul  
Alexander, F. H.....St. Paul  
Allen, Mason.....St. Paul  
Ancker, A. B.....St. Paul  
Arends, A. L.....St. Paul  
Armstrong, J. M.....St. Paul  
Arzt, C. P.....St. Paul  
Bacon, Knox.....St. Paul  
Bacon, L. C.....St. Paul  
Badeaux, Geo. I.....St. Paul  
Balcome, F. E.....St. Paul  
Ball, C. R.....St. Paul  
Ballard, J. A.....Hayward, Wis.  
Barron, Moses.....Minneapolis  
Barsness, Neille.....St. Paul  
Beadie, W. D.....St. Paul  
Beaudoux, H. A.....St. Paul  
Beckley, F. L.....St. Paul  
Benepe, L. M.....St. Paul  
Bennion, P. H.....St. Paul  
Berrisford, P. D.....Minneapolis  
Bettingen, J. W.....St. Paul  
Birnborg, T. L.....St. Paul  
Bock, R. A.....St. Paul  
Boeckmann, Eduard.....St. Paul  
Boeckmann, Egil.....St. Paul  
Bohland, E. H.....St. Paul  
Bole, R. S.....St. Paul  
Boleyn, E. S.....Stillwater  
Bolstad, H. C.....St. Paul  
Bosworth, Robinson.....St. Paul  
Brady, P. J.....Hastings  
Bray, E. R.....St. Paul  
Brimhall, J. B.....St. Paul  
Brooks, D. F.....St. Paul  
Brown, E. I.....St. Paul  
Brown, J. C.....St. Paul  
Brown, LeRoy.....St. PaulBuckley, E. W.....St. Paul  
Burch, F. E.....St. Paul  
Burns, R. M.....St. Paul  
Cameron, J. A.....St. Paul  
Campbell, E. P.....St. Paul  
Campbell, J. E.....South St. Paul  
Cannon, C. M.....St. Paul  
Cannon, Harry.....St. Paul  
Carman, Chas. L.....St. Paul  
Carroll, Wm. C.....St. Paul  
Cavanaugh, J. O.....St. Paul  
Chamberlin, J. W.....St. Paul  
Charpentier, A. A.....St. Paul  
Chatterton, C. C.....St. Paul  
Christiansen, Andrew.....St. Paul  
Christison, J. T.....St. Paul  
Clarke, T. C.....  
.....Soldier's Home, Minneapolis  
Cobb, S. G.....St. Paul  
Cole, Wallace.....St. Paul  
Colvin, A. R.....St. Paul  
Comstock, A. E.....St. Paul  
Cook, Paul B.....St. Paul  
Cowern, E. W.....North St. Paul  
Cuff, W. S.....St. Paul  
Darling, J. B.....St. Paul  
Daugherty, E. E.....St. Paul  
Daugherty, L. E.....St. Paul  
Davis, Herbert.....St. Paul  
Davis, William.....St. Paul  
Dedolph, Karl.....St. Paul  
Dennis, W. A.....St. Paul  
Denny, C. F.....St. Paul  
Dewar, J. Evan.....St. Paul  
Dickson, T. H. Jr.....St. Paul  
Dittman, Geo. C.....St. Paul  
Dodge, W. M.....Farmington  
Dohm, A. J.....St. Paul  
Dohm, C. L.....St. Paul  
Drake, C. B.....St. Paul  
Earl, George A.....St. Paul  
Earl, R. O.....St. Paul  
Engberg, Edw. John.....St. Paul  
Ernest, Geo. C.....St. Paul  
Eshelby, E. C.....St. Paul  
Ferguson, J. C.....St. Paul  
Flagg, S. D.....St. PaulFogarty, Chas. W.....St. Paul  
Foster, Burnside.....St. Paul  
Francis, S. O.....White Bear  
Freeman, Charles D.....St. Paul  
Fullerton, W. S.....St. Paul  
Fulton, John F.....St. Paul  
Furber, W. W.....Cottage Grove  
Gauger, E. C.....St. Paul  
Geer, E. F.....St. Paul  
Geist, Geo. A.....St. Paul  
Ghent, M. M.....St. Paul  
Gilfillan, J. S.....St. Paul  
Gillette, A. J.....St. Paul  
Goltz, E. V.....St. Paul  
Gotham, C. L.....St. Paul  
Gratzek, Thos.....St. Paul  
Gravelle, J. M. A.....St. Paul  
Greene, Charles L.....St. Paul  
Griffin, P. J.....St. Paul  
Haines, J. H.....Stillwater  
Hall, A. R.....St. Paul  
Hammes, E. M.....St. Paul  
Harding, J. C.....St. Paul  
Hawkins, V. J.....St. Paul  
Heath, A. C.....St. Paul  
Henderson, A. Powell River, B. C.  
Hensel, Charles N.....St. Paul  
Hesselgrave, S. S.....St. Paul  
Hilger, A. W.....St. Paul  
Hilger, D. D.....St. Paul  
Hilger, L. A.....St. Paul  
Hoff, Alfred.....St. Paul  
Hoff, Peder A.....St. Paul  
Holcomb, J. T.....Marine Mills  
Holcomb, O. W.....St. Paul  
Holl, P. M.....Minneapolis  
Hubert, R. L.....St. Paul  
Hunt, H. E.....St. Paul  
Ingerson, Carl A.....St. Paul  
Johnson, Asa M.....St. Paul  
Johnson, H. C.....St. Paul  
Jones, D. C.....St. Paul  
Jones, E. M.....St. Paul  
Kalinoff, D.....Stillwater  
Kelly, John V.....St. Paul  
Kelly, Paul H.....St. Paul  
Kern, M. J.....St. Cloud

Kesting, Herman.....St. Paul  
 Kistler, A. S.....St. Paul  
 Klein, H. N.....St. Paul  
 Lande, Wm. B.....St. Paul  
 Landeen, F. G.....Stillwater  
 Langenderfer, F. V.....St. Paul  
 Lankester, Howard.....St. Paul  
 Larsen, C. L.....St. Paul  
 Leahy, Bartholomew.....St. Paul  
 Leavitt, Frederick E.....St. Paul  
 Leitch, Arch.....St. Paul  
 Lerche, Wilhelm.....St. Paul  
 Lewis, J. B.....South St. Paul  
 Lewis, W. W.....St. Paul  
 Little, W. J.....St. Paul  
 Lufkin, H. M.....St. Paul  
 McCarthy, W. R.....St. Paul  
 McClanahan, J. H.....White Bear  
 McCloud, C. N.....St. Paul  
 McDavid, Thos.....St. Paul  
 McHugh, R. F.....Coleraine  
 McIntosh, Harry C.....St. Paul  
 McKeon, Owen.....St. Paul  
 McLaren, Jennette M.....St. Paul  
 McNevin, C. F.....St. Paul  
 MacLaren, A.....St. Paul  
 Maloney, T. J.....St. Paul  
 Martineau, Jos. L.....St. Paul  
 Meade, C. J.....St. Paul  
 Merrill, B. J.....Stillwater  
 Meyerding, E. A.....St. Paul  
 Michael, J. C.....St. Paul  
 Mitchell, Frederick J.....St. Paul  
 Mogilner, S. N.....St. Paul  
 Molzahn, H. E.....St. Paul  
 Mortensen, N. G.....St. Paul  
 Moyuahan, T. J.....St. Paul  
 Murphy, E. F.....St. Paul

Nelson, L. A.....St. Paul  
 Newman, G. A.....Stillwater  
 Nye, Katherine A.....St. Paul  
 O'Brien, H. J.....St. Paul  
 O'Connor, J. V.....St. Paul  
 O'Malley, W. P.....St. Paul  
 Ogden, B. H.....St. Paul  
 Ohage, Justus.....St. Paul  
 Ohage, Justus, Jr. Dickenson, N. D.  
 Olander, J. E.....St. Paul  
 Olson, C. A.....St. Paul  
 Ostergren, E. W.....St. Paul  
 Peck, L. D.....Hastings  
 Perry, C. G.....St. Paul  
 Peterson, V. N.....St. Paul  
 Pine, A. A.....St. Paul  
 Platt, J. J.....St. Paul  
 Plondke, F. J.....St. Paul  
 Pool, Daniel.....St. Paul  
 Quinn, J. A.....St. Paul  
 Ramaley, L.....St. Paul  
 Ramsey, W. R.....St. Paul  
 Renz, G. A.....St. Paul  
 Richards, E. T. F.....St. Paul  
 Riggs, C. E.....St. Paul  
 Ritchie, H. P.....St. Paul  
 Robinson, L. S. B.....St. Paul  
 Rogers, J. T.....St. Paul  
 Rothrock, J. L.....St. Paul  
 Rothschild, H. J.....St. Paul  
 Roy, Philemon.....St. Paul  
 Rutherford, W. C.....St. Paul  
 Ryan, John J.....St. Paul  
 Satterlund, V. L.....St. Paul  
 Savage, F. J.....St. Paul  
 Schatz, F. J.....Rosemount  
 Schnacke, R. A.....St. Paul  
 Schoch, R. B. J.....St. Paul  
 Schons, Edw.....St. Paul

Schuldt, F. C.....St. Paul  
 Schwyzer, Arnold.....St. Paul  
 Senkler, Geo. E.....St. Paul  
 Shimonek, Anton.....St. Paul  
 Simon, B. F.....St. Paul  
 Skinner, H. O.....St. Paul  
 Smith, H. R.....St. Paul  
 Sneve, Haldor.....St. Paul  
 Snyder, G. W.....Belle Plaine  
 Sohlberg, O.....St. Paul  
 Sohlberg, Olof I., Jr.....St. Paul  
 Staley, John C.....St. Paul  
 Steen, A. H.....Cottage Grove  
 Sterner, E. G.....St. Paul  
 Stevens, F. A.....Lake Elmo  
 Stierle, A., Jr.....St. Paul  
 Stolpestad, H. L.....St. Paul  
 Sweeney, Arthur.....St. Paul  
 Sweney, C. F.....St. Paul  
 Taylor, H. L.....St. Paul  
 Teisberg, C. B.....St. Paul  
 Turnachliff, D. D.....St. Paul  
 Van Slyke, Charles A.....St. Paul  
 Vercellini, G.....St. Paul  
 Waid, Rudolph H.....Hastings  
 Walsh, E. F.....St. Paul  
 Warner, E. F.....St. Paul  
 Warren, Edmund L.....St. Paul  
 Welch, M. C.....St. Paul  
 Whitacre, J. C.....St. Paul  
 Whitcomb, E. H.....St. Paul  
 White, J. S.....St. Paul  
 Whitney, A. W.....St. Paul  
 Williams, C.....St. Paul  
 Winnick, J. B.....St. Paul  
 Wold, K. C.....St. Paul  
 Zander, C. H.....St. Paul  
 Zaun, J. J.....St. Paul  
 Zimmerman, H. B.....St. Paul

#### Chisago-Pine County Medical Society

Regular meetings in January and July

Annual meeting in January

PRESIDENT  
 Murdock, H. G.....Taylor's Falls  
 SECRETARY  
 Anderson, C. A.....Rush City

Dredge, H. P.....Sandstone  
 Ehmke, W. C.....Willow River  
 Fenger, P. N.....Askov  
 Gray, C. E.....Rush City  
 Gunz, A. N.....Centre City  
 Lindberg, A. C.....North Branch

Stowe, A. J.....Rush City  
 Tilton, A. J.....Winger  
 Werner, O. S.....Lindstrom  
 Wiseman, R. L.....Pine City  
 Zeien, Thos.....North Branch

#### Central Minnesota District Medical Society

Mille Lacs, Isanti, Sherburne, and Kanabec Counties

Regular meetings, January, April, July, and October

Annual meeting in July

PRESIDENT  
 Bacon, H. P.....Milaca  
 SECRETARY  
 Parsons, George E.....Elk River

Cooney, H. C.....Princeton  
 Garand, J. H.....Dayton  
 Nelson, M. S.....Spring Grove  
 Olsen, S. H.....Milaca

Roadman, Ira M.....Onamia  
 Shulean, Nellie.....Cambridge  
 Swenson, Charles.....Braham  
 Vrooman, F. E.....St. Francis

#### Carlton County Medical Society

Regular meetings, uncertain

Annual meeting December twenty-ninth (Or last Wednesday in December)

PRESIDENT  
 Fleming, James.....Cloquet  
 SECRETARY  
 Raiter, Franklin.....Cloquet

Barclay, A.....Cloquet  
 Havens, J. G. W.....Cloquet  
 Miller, Henrietta P.....Cloquet

Shannon, Sylvester.....Barnum  
 Walters, Franklin R.....Moose Lake  
 Watkins, S. O.....Carlton

#### St. Louis County Medical Society

St. Louis, Cook, Lake and Itasca Counties

Regular meetings, second Thursday of each month

Annual meeting in October

PRESIDENT  
 Tilderquist, D. L.....Duluth  
 SECRETARY  
 Barney, Leon A.....Duluth  
 Abbott, Wm. P.....Duluth  
 Adams, B. S.....Hibbing  
 Anderson, L. N.....Duluth  
 Arminen, K. V.....Duluth  
 Ayers, Geo. T.....Ely  
 Bergquist, K. E.....Duluth  
 Blacklock, S. S.....Hibbing  
 Boyer, S. H.....Duluth  
 Braden, A. J.....Duluth

Bray, C. W.....Biwabik  
 Brooks, G. F.....Hibbing  
 Bullen, F. W.....Hibbing  
 Buins, R. L.....Two Harbors  
 Caldwell, J. P.....Marble  
 Carstens, C. F.....Hibbing  
 Chapman, T. L.....Duluth  
 Cheney, E. L.....Duluth  
 Christensen, E. P.....Two Harbors  
 Clark, F. F.....Duluth  
 Collins, Arthur N.....Duluth  
 Collins, Homer C.....Duluth  
 Coventry, W. A.....Duluth  
 Crowe, J. H.....Virginia  
 Davis, Horace S.....Duluth

Drenning, F. C.....Duluth  
 Eisenman, W. G.....Chisholm  
 Ekblad, J. W.....Duluth  
 Eklund, J. J.....Duluth  
 Ewens, H. B.....Virginia  
 Fahey, E. W.....Duluth  
 Farmer, J. C.....McKinley  
 Forbes, R. S.....Duluth  
 Gillespie, N. H.....Duluth  
 Giroux, A. A.....Duluth  
 Graham, David.....Duluth  
 Graham, R.....Duluth  
 Grawn, E. A.....Duluth  
 Grover, F. C.....Duluth  
 Haney, C. L.....Duluth



Hayes, M. F. .... Nashauk  
Hirschboech, F. J. .... Buhl  
Hirschfield, M. S. .... Duluth  
Hursch, M. M. .... Grand Rapids  
Jensen, T. J. .... Duluth  
Johnson, S. M. .... Buhl  
Kean, N. D. .... Coleraine  
Keyes, C. R. .... Duluth  
Kiesling, I. H. .... Hibbing  
King, W. S. .... Eveleth  
Kirk, A. B. .... Chisholm  
Klein, Harry .... Duluth  
Knauff, M. K. .... Two Harbors  
Kurtz, Peter .... Duluth  
Kurz, John .... Cook  
Kuth, Jos. R. .... Duluth  
Laird, A. T. .... Duluth  
Lenont, C. B. .... Virginia  
Lepak, Francis J. .... Duluth  
Linnemann, N. L. .... Duluth  
Lum, C. E. .... Duluth  
Lynan, Frank. .... Duluth  
McAuliffe, James. .... Duluth  
McComb, C. F. .... Duluth  
McCoy, Mary K. .... Duluth  
McCuen, J. A. .... Duluth

McDonald, A. L. .... Duluth  
McIntire, H. M. .... Eveleth  
McIntyre, E. H. .... Virginia  
Magie, W. H. .... Duluth  
Malmgren, C. V. .... Virginia  
Manley, J. R. .... Duluth  
Martin, T. R. .... Duluth  
Metcalf, F. W. .... Winton  
Michelson, H. E. .... Virginia  
More, C. W. .... Eveleth  
Morsman, C. F. .... Hibbing  
Morss, C. R. .... Zumbrota  
Murphy, I. J. .... St. Paul  
Murray, D. D. .... Duluth  
Nelson, E. H. .... Chisholm  
Nicholson, M. A. .... Duluth  
Oredson, O. A. .... Duluth  
Pare, L. T. .... Duluth  
Parker, Owen W. .... Ely  
Parsons, F. L. .... Mountain Iron  
Patton, F. J. .... Duluth  
Payette, C. H. .... Duluth  
Pesonen, A. A. .... Virginia  
Peiler, A. G. .... Hibbing  
Prudden, C. E. .... Duluth

Read, H. K. .... Hibbing  
Robinson, J. M. .... Duluth  
Rood, D. C. .... Hibbing  
Rowe, O. W. .... Duluth  
St. Clair, G. G. .... Section Thirty  
Schroder, Charles H. .... Duluth  
Schulze, Albert G. .... Duluth  
Schwartz, A. H. .... Duluth  
Seashore, D. E. .... Duluth  
Shapiro, E. Z. .... Duluth  
Shaw, A. W. .... Buhl  
Shellman, J. L. .... St. Paul  
Strathern, M. L. .... Gilbert  
Sukeforth, L. A. .... Duluth  
Sutherland, H. N. .... Ely  
Taylor, A. C. .... Duluth  
Taylor, C. W. .... Duluth  
Taylor, Rood. .... Minneapolis  
Tufty, J. M. O. .... Duluth  
Tuohy, E. L. .... Duluth  
Turnbull, F. M. .... Duluth  
Vercellini, C. E. .... Duluth  
Walker, A. E. .... Duluth  
Webster, H. E. .... Duluth  
Weirick, H. R. .... Hibbing  
Winter, John A. .... Duluth

## FOURTH DISTRICT

COUNCILOR, R. J. HILL. .... Minneapolis

## Hennepin County Medical Society

Regular meetings, first Monday in each month, except June, July, and August

Annual meeting in January

## PRESIDENT

Cross, J. G. .... Minneapolis

## SECRETARY

Maxeiner, Stanley R. .... Minneapolis

Abbott, A. W. .... Minneapolis  
Adair, F. L. .... Minneapolis  
Aldrich, A. G. .... Minneapolis  
Aldrich, Flora C. .... Anoka  
Aling, C. P. .... Minneapolis  
Allen, H. W. .... Minneapolis  
Andersen, Arnt G. .... Minneapolis  
Anderson, A. E. .... Minneapolis  
Anderson, J. D. .... Minneapolis  
Annis, H. B. .... Minneapolis  
Arey, H. C. .... Excelsior  
Aune, Martin. .... Minneapolis  
Aurand, W. H. .... Minneapolis  
Aurness, P. A. .... Minneapolis  
Austin, Edward E. .... Minneapolis  
Avery, J. Fowler. .... Minneapolis  
Aylmer, A. L. .... Minneapolis  
Baier, Florence C. .... Minneapolis  
Baker, A. T. .... Minneapolis  
Baker, E. L. .... Minneapolis  
Baker, Looe. .... Minneapolis  
Baldwin, L. B. .... Minneapolis  
Baiber, J. P. .... Minneapolis  
Bass, G. .... Minneapolis  
Baxter, S. H. .... Minneapolis  
Bell, J. W. .... Minneapolis  
Benedict, E. E. .... Minneapolis  
Benjamin, A. E. .... Minneapolis  
Benn, F. G. .... Minneapolis  
Benson, G. E. .... Minneapolis  
Bessesen, A. N. .... Minneapolis  
Bishop, Chas. W. .... Minneapolis  
Bissell, Frank S. .... Minneapolis  
Blake, James. .... Hopkins  
Blomburgh, A. F. .... Minneapolis  
Bockman, M. .... Minneapolis  
Booth, A. E. .... Minneapolis  
Boreen, Clifton A. .... Minneapolis  
Bouman, H. A. .... Minneapolis  
Bracken, H. M. .... Minneapolis  
Brede, W. G. .... Minneapolis  
Brooks, Charles N. .... Minneapolis  
Brown, E. D. .... Minneapolis  
Brown, E. J. .... Minneapolis  
Brown, Paul F. .... Minneapolis  
Brown, R. S. .... Minneapolis  
Burfiend, G. H. .... Afton  
Burns, H. A. .... Minneapolis  
Butler, John. .... Minneapolis  
Byrnes, W. J. .... Minneapolis  
Campbell, R. A. .... Minneapolis  
Carlaw, C. M. .... Minneapolis  
Cary, H. E. .... Minneapolis  
Cavanor, F. T. .... Minneapolis  
Cirkler, A. A. .... Minneapolis  
Clark, H. S. .... Minneapolis

Cohen, H. A. .... Minneapolis  
Collins, Herbert O. .... Minneapolis  
Condit, W. H. .... Minneapolis  
Corbett, J. F. .... Minneapolis  
Cosman, E. O. .... Minneapolis  
Cowles, D. C. .... Minneapolis  
Crafts, L. M. .... Minneapolis  
Crosby, J. A. .... Minneapolis  
Cruine, Geo. P. .... Minneapolis  
Dahl, J. A. .... Minneapolis  
Deziel, G. .... Minneapolis  
Dickey, R. R. .... Minneapolis  
Disen, C. F. .... Minneapolis  
Donaldson, C. A. .... Minneapolis  
Drake, C. R. .... Minneapolis  
Dreisbach, N. .... Minneapolis  
Dunsmoor, F. A. .... Minneapolis  
Egan, John M. .... Minneapolis  
Eggen, O. K. .... Minneapolis  
Engel, Geo. G. .... Minneapolis  
Engstad, J. E. .... Minneapolis  
Erb, Frederick A. .... Minneapolis  
Erdmann, Chas. A. .... Minneapolis  
Ericson, J. G. .... Minneapolis  
Farr, R. E. .... Minneapolis  
Feidt, W. W. .... Minneapolis  
Field, Emily W. .... Minneapolis  
FitzGerald, Don F. .... Minneapolis  
Fleming, A. S. .... Minneapolis  
Fox, Jno. M. .... Minneapolis  
Franzen, H. G. .... Minneapolis  
Gardner, E. L. .... Minneapolis  
Geist, Emil S. .... Minneapolis  
Gilkey, S. E. .... Minneapolis  
Gordon, G. J. .... Minneapolis  
Green, E. K. .... Minneapolis  
Groff, S. .... Minneapolis  
Guilford, H. M. .... Minneapolis  
Gunderson, H. J. .... Minneapolis  
Hacking, F. H. .... Minneapolis  
Hagen, G. L. .... Minneapolis  
Haggard, G. D. .... Minneapolis  
Hall, J. M. .... Minneapolis  
Hall, Pearl M. .... Minneapolis  
Hall, W. A. .... Minneapolis  
Hallowell, W. H. .... Minneapolis  
Hamilton, A. S. .... Minneapolis  
Hare, E. R. .... Minneapolis  
Harrah, J. W. .... Minneapolis  
Harrington, C. D. .... Minneapolis  
Hartzell, Thos. B. .... Minneapolis  
Haverfield, Addie R. .... Minneapolis  
Haynes, F. E. .... Minneapolis  
Haywood, Geo. M. .... Minneapolis  
Head, Geo. D. .... Minneapolis  
Hedback, A. E. .... Minneapolis  
Helk, C. H. .... Minneapolis  
Henry, C. E. .... Minneapolis  
Higbee, Paul A. .... Minneapolis  
Higgins, J. H. .... Minneapolis  
Hill, Eleanor J. .... Minneapolis  
Hill, R. J. .... Minneapolis

Hirschfield, Adolph. .... Minneapolis  
Hobbs, C. A. .... Minneapolis  
Hodge, S. V. .... Minneapolis  
Hoege, Knut. .... Minneapolis  
Horning, D. W. .... Minneapolis  
Huenekens, E. J. .... Minneapolis  
Hvoslef, Jakob. .... Minneapolis  
Hynes, James. .... Minneapolis  
Hynes, J. E. .... Minneapolis  
Iden, B. F. .... Minneapolis  
Irvine, H. G. .... Minneapolis  
Jensen, M. J. .... Minneapolis  
Johnson, A. E. .... Minneapolis  
Johnson, James A. .... Minneapolis  
Johnson, Julius. .... Minneapolis  
Johnson, Nimrod A. .... Minneapolis  
Jones, Herbert W. .... Minneapolis  
Jones, W. A. .... Minneapolis  
Josewich, Alex. .... Minneapolis  
Kavanagh, K. S. .... Minneapolis  
Keats, Julia M. Jacobson. ....  
..... Antelope, Mont.  
Kelly, E. S. .... Minneapolis  
Kennedy, C. C. .... Minneapolis  
Kennedy, Jane F. .... Minneapolis  
Kennedy, R. R. .... Minneapolis  
Kerrick, Stanley E. .... Minneapolis  
Kimball, H. H. .... Minneapolis  
King, E. A. .... Minneapolis  
Kistler, C. M. .... Minneapolis  
Knight, H. L. .... Minneapolis  
Knight, R. R. .... Minneapolis  
Knight, Ralph T. .... Minneapolis  
Kohler, Geo. A. .... Minneapolis  
Koller, L. R. .... Minneapolis  
Kriedt, Dan'l. .... Minneapolis  
Lajoie, J. M. .... Minneapolis  
Lapierre, C. A. .... Minneapolis  
Laurent, A. A. .... Minneapolis  
La Vake, R. T. .... Minneapolis  
Lawler, F. J. .... Minneapolis  
Leavitt, H. H. .... Minneapolis  
Lee, John W. .... Minneapolis  
Lee, K. J. .... Minneapolis  
Lee, Thos. G. .... Minneapolis  
Leland, M. N. .... Minneapolis  
Lewis, J. D. .... Minneapolis  
Lind, C. J. .... Minneapolis  
Linner, H. P. .... Minneapolis  
Litchfield, J. T. .... Minneapolis  
Little, J. W. .... Minneapolis  
Litzenberg, J. C. .... Minneapolis  
Loberg, A. E. .... Minneapolis  
Long, Jesse. .... Minneapolis  
Lyuch, M. J. .... Minneapolis  
Lynne, Henry. .... Minneapolis  
MacDonald, D. A. .... Minneapolis  
MacDonald, I. C. .... Minneapolis  
McCullom, C. A. .... Minneapolis  
McCusker, C. F. .... Minneapolis  
McDaniel, Orianna. .... Minneapolis  
McDermott, T. E. .... Minneapolis



McDonald, H. N. .... Minneapolis  
 McEachran, A. .... Minneapolis  
 McIntyre, Geo. .... Minneapolis  
 McLaughlin, J. A. .... Minneapolis  
 Macnie, J. S. .... Minneapolis  
 Maland, C. O. .... Minneapolis  
 Mann, A. T. .... Minneapolis  
 Mareley, W. J. .... Minneapolis  
 Mark, D. B. .... Minneapolis  
 May, W. H. .... Minneapolis  
 Mead, Marion A. .... Minneapolis  
 Meyer, F. L. .... Minneapolis  
 Miller, Hugo H. .... Harvey, N. D.  
 Moersch, Fred P. .... Minneapolis  
 Moir, Wm. W. .... Minneapolis  
 Monahan, J. A. .... Minneapolis  
 Moore, J. E. .... Minneapolis  
 Moorehead, Martha B. .... Minneapolis  
 Moren, E. .... Minneapolis  
 Morrison, A. W. .... Minneapolis  
 Morse, John H. .... Minneapolis  
 Murdock, A. J. .... Minneapolis  
 Murphy, W. B. .... Minneapolis  
 Murray, Wm. R. .... Minneapolis  
 Nelson, C. P. .... Minneapolis  
 Nelson, H. S. .... Minneapolis  
 Newhart, Horace .... Minneapolis  
 Newlrk, H. D. .... Minneapolis  
 Nickerson, M. L. .... Minneapolis  
 Nippert, L. A. .... Minneapolis  
 Nissen, Henrik .... Minneapolis  
 Nordland, Martin .... Robbinsdale  
 Norred, C. H. .... Minneapolis  
 Noth, H. W. .... Minneapolis  
 Oberg, C. M. .... Minneapolis  
 Oberg, E. .... Minneapolis  
 O'Donnell, J. E. .... Minneapolis  
 Olson, G. M. .... Minneapolis  
 Olson, Olaf A. .... Minneapolis  
 Orton, H. N. .... Minneapolis  
 Owre, Oscar .... Minneapolis  
 Parker, E. H. .... Minneapolis  
 Parks, Albert H. .... Minneapolis  
 Paulson, E. L. .... Minneapolis  
 Pederson, R. M. .... Minneapolis  
 Perry, Ralph St. J. .... Minneapolis  
 Peters, R. M. .... Minneapolis  
 Petersen, J. R. .... Minneapolis  
 Pettit, C. W. .... Minneapolis  
 Pileo, W. B. .... Minneapolis  
 Plehn, J. F. .... Minneapolis

Plonske, C. J. .... Minneapolis  
 Poehler, F. T. .... Minneapolis  
 Poppe, Fred H. .... Minneapolis  
 Pratt, F. J. .... Minneapolis  
 Preine, I. A. .... Minneapolis  
 Prim, J. A. .... Minneapolis  
 Quinby, Thos. F. .... Minneapolis  
 Quist, Henry W. .... Minneapolis  
 Reed, Chas. A. .... Minneapolis  
 Rexford, L. A. .... Minneapolis  
 Reynolds, J. S. .... Minneapolis  
 Ringnell, C. J. .... Minneapolis  
 Rishmiller, J. H. .... Minneapolis  
 Roan, Carl M. .... Minneapolis  
 Robbins, D. F. .... Minneapolis  
 Roberts, Thos. S. .... Minneapolis  
 Roberts, W. B. .... Minneapolis  
 Robertson, H. E. .... Minneapolis  
 Robitshek, E. C. .... Minneapolis  
 Rochford, W. E. .... Minneapolis  
 Rodda, F. C. .... Minneapolis  
 Rodgers, C. L. .... Minneapolis  
 Rosen, Samuel .... Minneapolis  
 Rosenwald, J. P. .... Minneapolis  
 Rutledge, J. W. .... Minneapolis  
 Sanford, J. A. .... Farmington  
 Schefcik, J. F. .... Minneapolis  
 Scheldrup, N. H. .... Minneapolis  
 Schlutz, F. W. .... Minneapolis  
 Schmidt, Karl H. .... Minneapolis  
 Schneider, J. P. .... Minneapolis  
 Schulze, Geo. .... Minneapolis  
 Schwyzer, G. .... Minneapolis  
 Seashore, Gilbert. .... Minneapolis  
 Sedgwick, J. P. .... Minneapolis  
 Simons, Jalmar. .... Minneapolis  
 Simpson, J. D. .... Minneapolis  
 Silvertsen, Ivar. .... Minneapolis  
 Slocumb, Maude S. .... Minneapolis  
 Smith, D. Edmund. .... Minneapolis  
 Smith, Norman M. .... Minneapolis  
 Soderlund, A. .... Minneapolis  
 Souba, F. J. .... Minneapolis  
 Spratt, C. N. .... Minneapolis  
 Staples, H. L. .... Minneapolis  
 Strachauer, Arthur C. .... Minneapolis  
 Strout, E. S. .... Minneapolis  
 Stuart, J. H. .... Minneapolis  
 Sweetser, H. B. .... Minneapolis  
 Sweitzer, S. E. .... Minneapolis

Taft, J. O. .... Minneapolis  
 Taft, Walter L. .... Minneapolis  
 Talbot, Ada E. .... Minneapolis  
 Ten Broeck, Lewis L. .... Minneapolis  
 Tennyson, Theodore. .... Minneapolis  
 Thomas, David O. .... Minneapolis  
 Thomas, Geo. E. .... Minneapolis  
 Thomas, G. H. .... Minneapolis  
 Thompson, H. H. .... Minneapolis  
 Tingdale, A. C. .... Minneapolis  
 Todd, F. C. .... Minneapolis  
 Towers, F. E. .... Minneapolis  
 Tunstead, Hugh. .... Minneapolis  
 Tyrrell, C. C. .... Minneapolis  
 Ulrich, Henry L. .... Minneapolis  
 Ulrich, Mabel S. .... Minneapolis  
 Van Deboget, Lewis. .... Minneapolis  
 Voyer, Emile O. .... Minneapolis  
 Wang, A. M. .... Minneapolis  
 Wanous, E. Z. .... Minneapolis  
 Warham, Thos. T. .... Minneapolis  
 Watson, C. W. .... Minneapolis  
 Watson, J. A. .... Minneapolis  
 Wesbrook, F. F. Vauclaver, B. C.  
 Weston, C. G. .... Minneapolis  
 Wethall, A. G. .... Minneapolis  
 Wheat, F. C. .... Minneapolis  
 Whetstone, Mary S. .... Minneapolis  
 Whipple, C. D. .... Minneapolis  
 Wilcox, Archa E. .... Minneapolis  
 Wilcox, M. Russell. .... Minneapolis  
 Wilcox, Van H. .... Minneapolis  
 Willcutt, C. E. .... Minneapolis  
 Williams, C. W. .... Minneapolis  
 Williams, H. L. .... Minneapolis  
 Williams, Robert. .... Minneapolis  
 Williams, U. G. .... Minneapolis  
 Willson, Hugh S. .... Minneapolis  
 Wippermann, Paul W. .... Minneapolis  
 Witham, C. A. .... Minneapolis  
 Woltmann, H. W. .... Minneapolis  
 Wood, Douglas F. .... Minneapolis  
 Woodard, F. R. .... Minneapolis  
 Woodward, F. O. .... Minneapolis  
 Woodworth, Elizabeth. .... Minneapolis  
 Wright, C. B. .... Minneapolis  
 Wright, C. D. .... Minneapolis  
 Wright, F. R. .... Minneapolis  
 Yoerg, O. W. .... Minneapolis  
 Ziskin, Thos. .... Minneapolis

#### Meeker County Medical Society

Regular meetings, March, June, September, and December

##### Annual meeting in December

**PRESIDENT**  
 Robertson, Archibald W. .... Litchfield  
**SECRETARY**  
 Danielson, Karl A. .... Litchfield

Brigham, F. T. .... Watkins  
 Chapman, W. E. .... Litchfield  
 Cutts, G. A. C. .... Grove City  
 Donovan, J. J. .... Litchfield

Dorge, R. I. .... Dassel  
 Peterson, A. C. .... Dassel  
 Peterson, George E. .... Dassel  
 Robertson, W. P. .... Litchfield

#### Wright County Medical Society

Regular meetings, first Monday in January, April, July, and October

##### Annual meeting in October

**PRESIDENT**  
 Hawkins, E. P. .... Montrose  
**SECRETARY**  
 Catlin, John J. .... Buffalo

Flom, A. O. .... Cokato  
 Harriman, L. .... Howard Lake  
 Jellison, E. R. .... Cokato  
 Kvello, O. A. .... Cokato  
 Metcalf, J. N. .... Monticello  
 Moffatt, A. G. .... Howard Lake  
 O'Hair, P. .... Waverly

Ridgway, A. M. .... Annandale  
 Rousseau, Victor. .... Maple Lake  
 Shrader, E. E. .... Watertown  
 Warner, E. A. .... Waverly  
 Weum, T. W. .... South Haven  
 Wooster, A. M. .... Rockford

#### Stearns-Benton County Medical Society

Regular meetings, third Thursday in January, April, July, and October

##### Annual meeting April fifteenth

**PRESIDENT**  
 Brigham, Charles F. .... St. Cloud  
**SECRETARY**  
 Boehm, J. C. .... St. Cloud  
 Arndt, H. W. .... Paynesville  
 Beaty, J. H. .... St. Cloud  
 Beebe, W. L. .... St. Cloud  
 Campbell, C. M. .... Melrose  
 Douglas, F. A. .... St. Cloud  
 DuBois, Julian A. .... Sauk Center  
 Dunn, John B. .... St. Cloud  
 Edmunds, I. L. .... Clearwater  
 Friesleben, William. .... Sauk Rapids  
 Frisch, Frank P. .... Kimball  
 Gaag, E. W. .... Great Falls, Mont.

Gelz, John J. .... Richmond  
 Glycer, R. T. .... Brooten  
 Goehrs, H. W. .... Melrose  
 Green, E. F. .... St. Cloud  
 Gulde, W. C. .... Minneapolis  
 Hilbert, Pierre A. .... Melrose  
 Hitchings, W. S. .... Lakefield  
 Holdridge, Geo. A. .... Foley  
 Hovorka, T. W. .... Albany  
 Kirghis, A. J. .... St. Cloud  
 Kolset, Carl D. .... Brooten  
 Kuhlmann, August. .... Melrose  
 Lamb, Harold L. .... Sauk Center  
 Lewis, C. B. .... St. Cloud  
 Lewis, Edwin J. .... Sauk Center  
 May, C. E. .... Minneapolis

McDowell, J. P. .... Sauk Rapids  
 Moynihan, A. F. .... Sauk Center  
 Pilon, Pierre C. .... Paynesville  
 Pinault, H. A. .... St. Joseph  
 Putney, George E. .... Paynesville  
 Rathbun, A. M. .... Rice  
 Rice, Geo. D. .... St. Cloud  
 Ridgway, Alex. .... Belgrade  
 Sherwood, Geo. E. .... Kimball  
 Slocumb, H. H. .... Belgrade  
 Stangl, P. E. .... St. Cloud  
 Sutton, C. S. .... St. Cloud  
 Sutton, H. E. .... Cold Spring  
 Trace, O. C. .... Clear Lake  
 Watson, Tolbert. .... Albany  
 Whiting, A. D. .... St. Cloud  
 Wolner, O. H. .... Gilbert

**Kandiyo-Swift County Medical Society**

Regular meetings, first Thursday in June and December, and two others on call of the President and the Secretary

Annual meeting the first Thursday in December

**PRESIDENT**

Johnson, Hans.....Kerkhoven

**SECRETARY**

Jacobs, J. C.....Willmar

Benson, I. S.....Willmar

Branton, B. J.....Willmar

Canfield, H. E.....Willmar  
Daignault, Oscar.....Benson  
Davison, P. C.....Willmar  
Froshaug, S. J.....Benson  
Frost, E. H.....Willmar  
Hansen, Henry V.....New London  
Johnson, Christian.....Willmar

Johnston, E. B.....Benson  
Kaufman, Wm. C.....Appleton  
Little, De Willis.....Appleton  
McMahon, D. J.....Raymond  
Oppegaard, M. O.....Minneapolis  
Rains, John M.....Willmar  
Scofield, C. L.....Benson  
Shelver, H. J.....Appleton

**FIFTH DISTRICT**

COUNCILOR, H. M. WORKMAN.....Tracy

**Camp Release District Medical Society**

Renville, Chippewa, Lac qui Parle, Yellow Medicine, and Sibley Counties

Regular meetings, January, April, July, and December

Annual meeting in December

**PRESIDENT**

Clay, E. M.....Renville

**SECRETARY**

Kerns, H. ....Granite Falls

Adams, R. C.....Bird Island

Aldrich, F. H.....Belview

Bacon, R. S.....Montevideo

Beck, W. M.....Clarkfield

Berg, S. A.....Granite Falls

Bergh, L. N.....Montevideo

Burns, M. A.....Milan

Cole, H. B.....Franklin

Crandall, A. M.....Fairfax

Cressy, F. J.....Granite Falls

Duclos, J. A.....Henderson

Duncan, H. ....Marietta

Ferguson, James B.....St. Paul  
Flinn, Thos. E.....Redwood Falls  
Flower, Ward Z.....Gibson  
Gaines, E. C.....Buffalo Lake  
Gammell, H. W.....Madison  
Giere, E. O.....Watertown, S. D.  
Hammerstrand, F. L.....  
.....Sacred Heart  
Hanson, H. H.....Milan  
Hauge, M. M.....Clarkfield  
Helland, J. W.....Maynard  
Holmberg, L. J.....Canby  
Johnson, A. E.....Madison  
Johnson, Carl M.....Montevideo  
Johnson, H. M.....Dawson  
Johnson, O. F.....Winthrop  
Jones, D. N.....Minneapolis  
Kanne, C. W.....Arlington

La Rue, B. F.....Appleton  
Lima, L. ....Montevideo  
Marken, M. H.....Boyd  
Mee, P. H.....Osseo  
Mesker, G. H.....Olivia  
Moore, W. J.....Wood Lake  
Nelson, N. A.....Dawson  
Passer, A. A.....Olivia  
Pease, G. R.....Redwood Falls  
Penhall, F. W.....Morton  
Peterson, T.....Gaylord  
Puffer, F. L.....Bird Island  
Smith, L. G.....Montevideo  
Stemsrud, A. A.....Dawson  
Strout, G. E.....Winthrop  
Walker, G. H.....Fairfax  
Whittier, R. W.....Morton  
Zimbeck, R. D.....Maynard

**Brown-Redwood County Medical Society**

Regular meetings, January and June

Annual meeting in January

**PRESIDENT**

Jamieson, Earl ...Walnut Grove

**SECRETARY**

Reineke, G. F.....New Ulm

Adams, J. L.....Morgan

Brand, W. A.....Redwood Falls

Fritsche, L. A.....New Ulm

Gleysteen, D.....Lamberton

Gray, F. D.....Marshall  
Hammermeister, T. F.....New Ulm  
Herron, D. A.....Comfrey  
Kiefer, M. A.....Sleepy Eye  
Kuske, A. L.....Hutchinson  
Meierding, W. A.....Springfield  
Peterson, R. A.....Vesta  
Piper, M. C.....Sanborn  
Ravn, Bjarne.....Milroy  
Rothenburg, J. C.....Springfield

Schoch, J. L.....New Ulm  
Seifert, O. J.....New Ulm  
Shrader, J. S.....Springfield  
Strickler, A. F.....Sleepy Eye  
Strickler, O. C.....New Ulm  
Sundt, Mathias .....Hanska  
Vogel, J. H.....New Ulm  
Walker, C. C.....Lamberton  
Weiser, G. B.....New Ulm  
Wellcome, J. W. B.....Sleepy Eye

**Lyon-Lincoln County Medical Society**

Regular meetings, first Tuesday in February, May, July and October

Annual meeting in February

**PRESIDENT**

Persons, C. E.....Marshall

**SECRETARY**

Workman, H. M.....Tracy

Akester, Ward.....Marshall

Bacon, C. G.....Marshall

Germo, Chas.....Balaton  
Hard, A. D.....Marshall  
Hoidale, A. D.....Tracy  
Jacquot, G. L.....Ivanhoe  
Jensen, J. C.....Hendricks  
Paulson, Theo. S.....Tyler  
Robertson, J. B.....Cottonwood

Sanderson, Ed. T.....Minneota  
Tharaldsen, Thorfinn.....Cottonwood  
Thordarson, Th.....Minneota  
Vadheim, Alfred L.....Tyler  
Valentine, W. H.....Tracy  
Wakefield, Wm.....Lake Benton  
Williams, H. O.....Lake Crystal  
Workman, W. G.....Tracy

**SIXTH DISTRICT**

COUNCILOR, F. R. WEISER.....Windom

**Southwestern Medical Society**

Pipestone, Rock, Nobles, Murray, and Cottonwood Counties

Regular meetings, second Thursday in May and November

Annual meeting in November

**PRESIDENT**

Dudley, J. H.....Windom

**SECRETARY**

King, Emil .....Fulda

Aldrich, L. I.....Black Earth, Wis.

Arnold, E. W.....Bigelow

Balcom, G. G.....Lake Wilson

Bong, J. H.....Jasper

Brown, A. H.....Pipestone  
Cress, P. J.....Ellsworth  
De Boer, Hermanus.....Edgerton  
Dolan, C. P.....Worthington  
Doms, H. C.....Slayton  
Eaton, W. H.....Adrian  
Gerber, Lou M.....Jasper  
Hart, Bruce D.....Round Lake  
Hilger, J. M.....Tona

Leebens, John H.....Lismore  
Lowe, Thomas.....Pipestone  
McKeown, E. G.....Edgerton  
Manson, F. M.....Worthington  
Mav, C. C.....Adrian  
Miller, Victor I.....Mankato  
Mork, B. O.....Worthington  
Patterson, W. E.....Currie  
Piper, Wm. A.....Mountain Lake

Richardson, W. E.....Slayton  
 Richmond, Chas. D.....Jeffers  
 Schmidt, Geo. F.....Pipestone  
 Schmidt, H. A.....Westbrook  
 Sherman, C. L.....Luverne

Smallwood, J. T. ....Worthington  
 Sogge, L. ....Windom  
 Spalding, A. E.....Luverne  
 Sullivan, M. ....Adrian  
 Taylor, Wm. J. ....Pipestone  
 Tofte, Josephine B....Pine City

Watson, F. G.....Rushmore  
 Weiser, F. R.....Windom  
 Wiedow, Henry.....Worthington  
 Williams, Leon A.....Slayton  
 Wright, C. O.....Luverne

#### Blue Earth Valley Medical Society

Faribault and Martin Counties

Regular meetings, last Thursday in May and October

Annual meeting last Thursday in May

**PRESIDENT**  
 Stewart, O. E.....Bricelyn  
**SECRETARY**  
 Broberg, J. A.....Blue Earth  
 Anderson, N. P.....Sherburn  
 Bailey, H. B.....Ceylon  
 Barr, W. H.....Wells  
 Bickford, H. G.....Minnesota Lake

Blong, P. H.....Elmore  
 Burton, C. N.....Blue Earth  
 Butz, J. A.....Monterey  
 Chambers, W. C.....Blue Earth  
 Dewey, G. W.....Fairmont  
 Durgin, F. L.....Winnebago  
 Farrish, R. C.....Sherburn  
 Gaugh, W. H.....Granada  
 Gullixson, Andrew.....Bricelyn  
 Holm, P. F.....Wells

Hunt, F. N.....Fairmont  
 Hunt, R. C.....Fairmont  
 Hunte, A. F.....Truman  
 Johnson, H. P.....Fairmont  
 Luedtke, G. H.....Fairmont  
 McGroarty, J. J.....Easton  
 Mikkelsen, M. ....Wells  
 Nickerson, W. S.....Delavan  
 Strobel, W. G.....Welcome  
 Urstad, O. H.....Kiester  
 Wilson, C. E.....Blue Earth

#### Jackson County Medical Society

Regular meetings, second Tuesday in May and November

Annual meeting in November

**PRESIDENT**  
 Chadbourn, A. G.....Heron Lake  
**SECRETARY**  
 Moe, Anton J.....Heron Lake

Allen, R. W.....Heron Lake  
 Arzt, Herbert L.....Jackson  
 Bjorn, N. A.....Jackson  
 Hitchings, W. S.....Lakefield  
 Leigh, H. J.....Lakefield

Maitland, David P.....Jackson  
 Nusbaum, D. H.....Jackson  
 Portmann, U. V.....Jackson  
 Portmann, Wm. C.....Jackson  
 Rowe, Arthur N.....Heron Lake  
 Searles, Scott .....Lakefield

#### Watonwan County Medical Society

Annual meeting, second Wednesday in December

Regular meetings not fixed

**PRESIDENT**  
 Thompson, Albert.....St. James  
**SECRETARY**  
 Haynes, B. H.....St. James

Grimes, H. B.....Madelia  
 Hagen, O. E.....Butterfield

Kabrick, O. A.....Olin  
 McCarthy, W. J.....Madelia  
 Rowe, W. H. Jr.....St. James

### SEVENTH DISTRICT

COUNCILOR, F. A. DODGE.....Le Sueur

#### Nicollet-Le Sueur County Medical Society

Regular meetings, twice a year

Annual meeting in January

**PRESIDENT**  
 Baskett, Geo. T.....St. Peter  
**SECRETARY**  
 Strathern, F. P.....St. Peter  
 Aitkens, H. B.....Le Sueur Center  
 Baskett, L. W.....Plevna, Mont.

Baskett, Olive T.....St. Peter  
 Blakely, C. C.....St. Peter  
 Covey, Herman W.....St. Peter  
 Daniels, J. W.....St. Peter  
 Dodge, F. A.....Le Sueur  
 Eirley, Clara S.....St. Peter  
 Freeman, Geo. H.....Willmar  
 Hartung, H. A.....Le Sueur  
 Le Clerc, Joseph E.....Le Sueur

McDougald, D. W.....Le Sueur  
 McIntyre, G. W.....St. Peter  
 Merritt, G. E.....St. Peter  
 Olson, R. G.....Nicollet  
 Phelps, R. M.....St. Peter  
 Theissen, W. N.....Faribault  
 Valin, H. D.....St. Peter  
 Woodworth, L. F.....Le Sueur Center

#### McLeod County Medical Society

Regular meetings, January, April, July, and October

Annual meeting in January

**PRESIDENT**  
 Clement, J. B.....Lester Prairie  
**SECRETARY**  
 Maurer, E. L.....Brownton

Axlrod, D. L.....Hutchinson  
 Barrett, E. E.....Glencoe  
 Bolles, D. W.....Minneapolis  
 Sheppard, Fred.....Hutchinson

Sheppard, P. E.....Hutchinson  
 Tinker, C. W.....Stewart  
 Wheeler, M. W.....Glencoe

#### Scott-Carver County Medical Society

Regular meetings, first Thursday in March, June, September, and December

Annual meeting in December

**PRESIDENT**  
 Landenberger, John.....New Prague  
**SECRETARY**  
 Reiter, H. W.....Shakopee  
 Bohland, F. J.....Belle Plaine  
 Buck, Fred H.....Shakopee

Cannady, E. E.....Prior Lake  
 Fischer, H. P.....Shakopee  
 Fischer, P. M.....Shakopee  
 Grivelli, Chas. T.....Young America  
 Grivelly, Hans J.....  
 .....Waynesburg, Ky.  
 Henriksen, H. G.....New Market  
 Kucera, W. J.....New Prague

McKeon, James .....Montgomery  
 Moloney, G. R.....Belle Plaine  
 Novak, E. E.....New Prague  
 Phillips, Wm. H.....Jordan  
 Schneider, H. A.....Jordan  
 Soper, J. E.....Norwood  
 Westerman, F. C.....Montgomery  
 White, J. B.....Belle Plaine



**Goodhue County Medical Society**

Regular meetings, first Tuesday after first Monday in January, April,  
July and October

**Annual meeting in January****PRESIDENT**

Claydon, L. E.....Red Wing

**SECRETARY**

McGuigan, H. T.....Red Wing

Aanes, A. M.....Red Wing

Anderson, J. V.....Red Wing

Beyer, A. G.....Red Wing

Conley, A. T.....Cannon Falls

Conley, H. E.....Cannon Falls

Craddock, W. L.....Pine Island

Cremer, M. H.....Red Wing

Cremer, P. H.....Hastings

Fjelstad, C. A.....Red Wing

Gates, C. E.....Goodhue

Gates, J. A.....Kenyon

Johnson, A. E.....Red Wing

Jones, A. W.....Red Wing

McKaig, C. B.....Pine Island

Regner, J. A.....Cannon Falls

Sawyer, H. P.....Goodhue

Smith, M. W.....Red Wing

**Rice County Medical Society**

Regular meetings, January, April, July, and October

**Annual meeting in January****PRESIDENT**

Rogers, A. C.....Faribault

**SECRETARY**

Davis, F. U.....Faribault

Babcock, F. M.....Northfield

Barnard, Elizabeth M.....

.....Minneapolis

Finley, W. F.....Lonsdale

Haessly, S. B.....Faribault

Hanson, A. M.....Faribault

Hunt, W. A.....Northfield

Huxley, F. R.....Faribault

Lane, Laura A.....Faribault

Lee, W. P.....Northfield

Lexa, F. J.....Lonsdale

MacDonald, A. E.....St. Paul

Mayland, M. L.....Faribault

Phillips, J. G.....Northfield

Robilliard, Chas. M.....Morristown

Rumpf, W. H.....Faribault

Seeley, J. S.....Faribault

Smith, P. A.....Faribault

Trowbridge, E. H.....Faribault

Warren, F. S.....Faribault

Wilson, W.....Northfield

**Wabasha County Medical Society**

Regular meeting (annually) first Thursday after first Monday in July

**PRESIDENT**

Fleischhauer, D. S.....Wabasha

**SECRETARY**

Wilson, W. F.....Lake City

Adams, W. T.....Elgin

Bayley, E. H.....Lake City

Bleifuss, W. F.....Elgin

Cochrane, W. J.....Lake City

Dempsey, D. P.....Kellogg

French, E. A.....Plainview

Heagerty, W. B.....Mazeppa

Nauth, W. W.....Minneiska

Rankin, A. A.....Zumbro Falls

Shaughnessy, M. J.....Wabasha

Slocumb, J. A.....Plainview

**EIGHTH DISTRICT**

COUNCILOR, HUGH F. MCGAUGHEY.....Winona

**Blue Earth County Medical Society**

Regular meetings, March, June, September, and December

**Annual meeting in December****PRESIDENT**

Kemp, A. F.....Mankato

**SECRETARY**

Wentworth, A. J.....Mankato

Andrews, J. W.....Mankato

Andrews, Roy N.....Mankato

Benham, E. W.....Mankato

Curran, G. R.....Mankato

Dahl, G. A.....Mankato

Dennan, A. V.....Mankato

Field, Merton.....St. Peter

Hielscher, Helen H.....Mankato

Hielscher, J. A.....Mankato

Holbrook, J. S.....Mankato

Holman, C. J.....Mankato

James, J. H.....Mankato

Kelly, T. C.....Mankato

Liedloff, A. G.....Mankato

Lloyd, H. J.....Lake Crystal

Luck, Hilda.....Mankato

Merrill, J. E.....Amboy

Osborn, Lida.....Mankato

Pratt, C. C.....Mankato

Schlesselman, J. T.....Good Thunder

Schmitt, A. F.....Mankato

Sohmer, A. E. J.....Mankato

Wohlrahe, A. A.....Mankato

**Dodge County Medical Society**

Regular meetings, January, April, June and October

**Annual meeting in June****PRESIDENT**

Smith, F. D.....Kasson

**SECRETARY**

Bigelow, Chas. E.....Dodge Center

Adams, R. T.....Mantorville

Baker, A. L.....Kasson

Belt, W. E.....Dodge Center

Clifford, F. F.....West Concord

Harrison, E. E.....West Concord

Way, O. F.....Claremont

**Freeborn County Medical Society**

Regular meetings, November and quarterly.

**Annual meeting in May****PRESIDENT**

Von Berg, J. P.....Albert Lea

**SECRETARY**

Stevenson, Robert G.....Albert Lea

Bessesen, W. A.....Albert Lea

Burton, Oscar A.....Albert Lea

Butturff, C. R.....Freeborn

Calhoun, Frank W.....Albert Lea

Davis, F. W.....Alden

Freeman, J. P.....Glenville

Gramenz, F.....Albert Lea

Kamp, Byron A.....Albert Lea

Nannestad, J. R.....Albert Lea

Palmer, W. L.....Albert Lea

Rodli, O. E.....Albert Lea

Rudolf, S. F.....Albert Lea

Schaaf, F. H. K.....Hartland

Schultz, J. A.....Emmons

## Houston-Fillmore County Medical Society

Regular meetings, April, June, August, and October

Annual meeting in October

**PRESIDENT**  
Kendrick, W. N....Spring Valley

**SECRETARY**  
Fischer, O. F.....Houston

Anderson, Norman E....Harmony  
Browning, W. E.....Caledonia

Collins, J. S.....Caledonia  
Drake, F. A.....Lanesboro  
Eby, Cyrus B.....Spring Valley  
Helland, G. M.....Spring Grove  
Hvoslef, J. C.....Lanesboro  
Kibbe, O. A.....Canton  
Kierland, P. E.....Harmony  
Lannin, J. C.....Mabel  
Lommen, A. P.....Lanesboro

Love, George A.....Preston  
Nass, H. A.....Mabel  
Onsgard, C. K.....Rushford  
Onsgard, L. K.....Houston  
Rhines, D. C.....Caledonia  
Utley, J. D.....Spring Valley  
Williams, R. V.....Rushford  
Woodruff, C. W.....Chatfield

## Mower County Medical Society

Regular meetings, second Wednesday in January, April, July, and October

Annual meeting in October

**PRESIDENT**  
McBroom, D. E.....Adams

**SECRETARY**  
Allen, C. C.....Austin

Allen, A. W.....Austin  
Baker, G. L.....Ada

Cobb, W. F.....Lyle  
Coleman, F. B.....Austin  
Hart, M. J.....LeRoy  
Hegge, C. A.....Austin  
Hegge, O. H.....Austin  
Henslin, A. E.....LeRoy  
Johnson, C. H.....Austin  
Leck, Clifford C.....Austin

Lewis, C. F.....Austin  
Manahan, Chas. A....Brownsdale  
Mitchell, R. S.....Grand Meadow  
Moses, Joseph, Jr.....Adams  
Peirson, Homer F.....Austin  
Rehman, E. C.....Austin  
Rogers, G. M.....Austin  
Schottler, G. J.....Dexter  
Torkelson, P. T.....Lyle

## Olmsted County Medical Society

Regular meetings, each alternate month

Annual meeting in December or January

**PRESIDENT**  
Shelden, W. D.....Rochester

**SECRETARY**  
Meyerding, Henry W...Rochester

Adams, A. S.....Rochester  
Allen, Wilson A.....Rochester  
Archibald, A. ....Rochester  
Balfour, Donald .....Rochester  
Beckman, E. H.....Rochester  
Berkman, D. M.....Rochester  
Braasch, W. F.....Rochester  
Crewe, John E.....Rochester  
Crispin, E. L.....Rochester  
Eusterman, Geo. ....Rochester

Fawcett, Chas. E...Stewartville  
Fisher, Carl.....Rochester  
Giffin, H. Z.....Rochester  
Graham, C. ....Rochester  
Granger, C. T.....Rochester  
Granger, Gertrude B...Rochester  
Hallenbeck, Dorr F...Rochester  
Henderson, M. S.....Rochester  
Heyerdale, O. C.....Rochester  
Joyce, Geo. T.....Rochester  
Judd, E. S.....Rochester  
Kilbourne, A. F.....Rochester  
Linton, W. B.....Rochester  
Logan, A. H.....Rochester  
Matthews, Justus ....Rochester  
Mayo, C. H.....Rochester  
Mayo, W. J.....Rochester

Mosse, F. R.....Rochester  
Mussey, R. D.....Rochester  
New, G. B.....Rochester  
Ohlinger, L. B.....Rochester  
Plummer, H. S.....Rochester  
Plummer, W. A.....Rochester  
Pollock, Lee W.....Rochester  
Russell, H. R.....Stewartville  
Sistrunk, W. E.....Rochester  
Smith, E. V.....Rochester  
Smith, F. L. ....Eyota  
Stacy, Leda .....Rochester  
Steven, George .....Byron  
Thomas, G. J.....Rochester  
Walker, J. C.....Rochester  
Wilson, L. B.....Rochester  
Witherstine, H. H.....Rochester

## Steele County Medical Society

Regular meetings, first Tuesday in each month

Annual meeting in December

**PRESIDENT**  
Smersh, Francis M....Owatonna

**SECRETARY**  
Stewart, Allan B. ....Owatonna

Adair, John H. ....Owatonna  
Andrist, J. W.....Owatonna  
Dailey, W. J.....Bloomington  
Ertel, E. Q.....Ellendale  
Hart, A. B.....Owatonna  
Melby, Benedik.....Bloomington

Morehouse, G. G.....Owatonna  
Peterson, Christian ...Owatonna  
Senn, E. W.....Owatonna  
Thimsen, N. C....Bloomington  
Warren, J. W.....Minneapolis

## Waseca County Medical Society

Regular meetings, first Monday in January, April, July, and October

Annual meeting in January

Report not received.

## Winona County Medical Society

Regular meetings, first Tuesday in January, April, July, and October

Annual meeting in January

**PRESIDENT**  
Neumann, W. H. ....Lewiston

**SECRETARY**  
McGaughey, H. F.....Winona

Bear, H. C.....St. Charles  
Clay, F. H.....St. Charles  
Gates, G. L.....Winona

Heise, W. F. C.....Winona  
Keyes, E. D.....Winona  
Leicht, Oswald .....Winona  
Lester, C. A.....Winona  
Lichtenstein, H. M.....Winona  
Lindsay, W. V.....Winona  
Lynch, Elizabeth .....Winona  
Lynch, J. L.....Winona  
McLaughlin, E. M.....Winona

Muir, Edwin S.....Winona  
Neumann, C. A.....Lewiston  
Pritchard, D. B.....Winona  
Robbins, C. P.....Winona  
Rollins, F. H.....St. Charles  
Rosenberry, E. P.....Winona  
Schaefer, S.....Winona  
Scott, J. W.....St. Charles  
Tweedy, G. J.....Winona

## ALPHABETICAL ROSTER

Aanes, A. M.	Red Wing	Bass, G. W.	Minneapolis	Brown, LeRoy	St. Paul
Aborn, W. H.	Dilworth	Baskett, Geo. T.	St. Peter	Brown, Paul F.	Minneapolis
Abbott, A. W.	Minneapolis	Baskett, L. W.	Plevna, Mont.	Brown, R. S.	Minneapolis
Abbott, J. S.	St. Paul	Baskett, Olive T.	St. Peter	Browning, W. E.	Caledonia
Abbott, Wm. P.	Duluth	Baxter, S. H.	Minneapolis	Buck, Fred H.	Shakopee
Abramovich, J. H.	St. Paul	Bayley, E. H.	Lake City	Buckley, E. W.	St. Paul
Adair, F. L.	Minneapolis	Beadie, W. D.	St. Paul	Bullen, F. W.	Hibbing
Adams, B. S.	Hibbing	Bear, H. C.	St. Charles	Burch, F. E.	St. Paul
Adair, John H.	Owatonna	Beaty, J. H.	St. Cloud	Burfiend, G. H.	Afton
Adams, A. S.	Rochester	Beaudoux, H. A.	St. Paul	Burlingame, C. C.	Manchester, Conn.
Adams, J. L.	Morgan	Beck, W. M.	Clarkfield	Burnap, W. L.	Fergus Falls
Adams, R. C.	Bird Island	Beckley, F. L.	St. Paul	Burns, H. A.	Minneapolis
Adams, R. T.	Mantorville	Beckman, E. H.	Rochester	Burns, M. A.	Milan
Adams, W. T.	Elgin	Beebe, Warren L.	St. Cloud	Burns, R. L.	Two Harbors
Adkins, C. M.	Grygla	Beise, R. A.	Brainerd	Burns, R. M.	St. Paul
Ahrens, A. E.	St. Paul	Bell, J. W.	Minneapolis	Burton, C. N.	Blue Earth
Ahrens, A. H.	St. Paul	Belt, W. E.	Dodge Center	Burton, Oscar A.	Albert Lea
Aitkens, H. B.	Le Sueur Center	Benedict, E. E.	Minneapolis	Butler, John	Minneapolis
Akester, Ward	Marshall	Benephe, L. M.	St. Paul	Butturff, C. R.	Freeborn
Aides, Harry	St. Paul	Benham, E. W.	Mankato	Butz, J. A.	Monterey
Aldrich, A. G.	Minneapolis	Benjamin, A. E.	Minneapolis	Byrnes, W. J.	Minneapolis
Aldrich, Flora C.	Anoka	Benn, F. G.	Minneapolis	Cabot, Verne S.	Bowerville
Aldrich, F. H.	Belview	Bennion, P. H.	St. Paul	Caine, C. E.	Morris
Aldrich, L. I.	Black Earth, Wis.	Benson, G. E.	Minneapolis	Caldwell, J. P.	Marble
Alexander, F. H.	St. Paul	Benson, I. S.	Willmar	Calhoun, Frank W.	Albert Lea
Aling, C. P.	Minneapolis	Berg, S. A.	Granite Falls	Cameron, J. A.	St. Paul
Allen, A. W.	Austin	Berge, P. L.	Brainerd	Campbell, C. M.	Melrose
Allen, C. C.	Austin	Bergh, L. N.	Montevideo	Campbell, E. P.	St. Paul
Allen, F. H.	Staples	Bergquist, K. E.	Duluth	Campbell, J. E.	South St. Paul
Allen, H. W.	Minneapolis	Berkman, D. M.	Rochester	Campbell, R. A.	Minneapolis
Allen, Mason	St. Paul	Berrisford, P. D.	Minneapolis	Cannfield, H. E.	Willmar
Allen, R. W.	Heron Lake	Bertelsen, O. L.	Crookston	Cannady, E. E.	Prior Lake
Allen, Wilson A.	Rochester	Berthold, J. L.	Perham	Cannon, C. M.	St. Paul
Ancker, A. B.	St. Paul	Bessen, A. N.	Minneapolis	Cannon, Harry	St. Paul
Andersen, Arnt G.	Minneapolis	Bessen, W. A.	Albert Lea	Carlaw, C. M.	Minneapolis
Anderson, A. E.	Minneapolis	Bettingen, J. W.	St. Paul	Carman, Chas. L.	St. Paul
Anderson, C. A.	Rush City	Beyer, A. G.	Red Wing	Carman, J. E.	Detroit
Anderson, J. D.	Minneapolis	Bickford, H. G.	Minnesota Lake	Carroll, Wm. C.	St. Paul
Anderson, J. V.	Red Wing	Bigelow, Chas. E.	Dodge Center	Cary, H. E.	Minneapolis
Anderson, L. N.	Duluth	Biorn, N. A.	Jackson	Carstens, C. F.	Hibbing
Anderson, Norman E.	Harmony	Birnberg, T. L.	St. Paul	Catlin, John J.	Buffalo
Anderson, N. P.	Sherburn	Bishop, Chas. W.	Minneapolis	Catun, T. J.	Palisade
Anderson, W. S.	Warren	Bissell, Frank S.	Minneapolis	Cavanaugh, J. O.	St. Paul
Andrews, J. W.	Mankato	Blacklock, S. S.	Hibbing	Cavanor, F. T.	Minneapolis
Andrews, Roy N.	Mankato	Blake, James	Hopkins	Chadbourne, A. G.	Heron Lake
Andrist, J. W.	Owatonna	Blakely, C. C.	St. Peter	Chamberlin, J. W.	St. Paul
Annis, H. B.	Minneapolis	Blegen, H. M.	Oslo	Chambers, W. C.	Blue Earth
Archibald, A.	Rochester	Bleifuss, W. F.	Elgin	Chapman, T. L.	Duluth
Arends, A. L.	St. Paul	Blomburgh, A. F.	Minneapolis	Chapman, W. E.	Litchfield
Arey, H. C.	Excelsior	Blong, P. H.	Elmore	Charpentier, A. A.	St. Paul
Arminen, K. V.	Duluth	Bock, R. A.	St. Paul	Chatterton, C. C.	St. Paul
Armstrong, J. M.	St. Paul	Bockman, M.	Minneapolis	Cheney, E. L.	Duluth
Arndt, H. W.	Paynesville	Boeckmann, Eduard	St. Paul	Christenson, C. R.	Starbuck
Arneson, Thomas	Climax	Boeckmann, Egil	St. Paul	Christensen, E. P.	Two Harbors
Arnold, E. W.	Bigelow	Boehm, J. C.	St. Cloud	Christiansen, Andrew	St. Paul
Arzt, C. P.	St. Paul	Bohland, E. H.	St. Paul	Christie, G. R.	Long Prairie
Arzt, Herbert L.	Jackson	Bohland, F. J.	Belle Plaine	Christison, J. T.	St. Paul
Aune, Martin	Minneapolis	Bole, R. S.	St. Paul	Cirkler, A. A.	Minneapolis
Aurand, W. H.	Minneapolis	Boleyn, E. S.	Stillwater	Clair, J. B.	Winsted
Aurness, P. A.	Minneapolis	Bolles, D. W.	Minneapolis	Clark, F. F.	Duluth
Austin, Edward E.	Minneapolis	Bolsta, Chas.	Ortonville	Clark, H. S.	Minneapolis
Avery, J. Fowler	Minneapolis	Bolstad, H. C.	St. Paul	Clarke, T. C.	Soldier's Home, Minneapolis
Awty, W. J.	Moorhead	Bong, J. H.	Jasper	Clay, E. M.	Renville
Axilrod, D. L.	Hutchinson	Booth, A. E.	Minneapolis	Clay, F. H.	St. Charles
Ayers, Geo. T.	Ely	Boreen, Clifton A.	Minneapolis	Claydon, L. E.	Red Wing
Aylmer, A. L.	Minneapolis	Borreson, B.	Warren	Clement, J. B.	Lester Prairie
Bahcock, F. M.	Northfield	Bosworth, Robinson	St. Paul	Clifford, F. F.	West Concord
Bacon, C. G.	Marshall	Bouman, H. A.	Minneapolis	Cobb, W. F.	Lyle
Bacon, H. P.	Milaca	Bowers, J. T.	Gully	Cobb, S. G.	St. Paul
Bacon, Knox	St. Paul	Boyd, L. M.	Alexandria	Cochrane, W. J.	Lake City
Bacon, L. C.	St. Paul	Boyer, S. H.	Duluth	Cohen, H. A.	Minneapolis
Bacon, R. S.	Montevideo	Boysen, Peter	Pelican Rapids	Cole, Herman B.	Franklin
Badeaux, Geo. I.	St. Paul	Braasch, W. F.	Rochester	Cole, Wallace	St. Paul
Baier, Florence C.	Minneapolis	Bracken, H. M.	Minneapolis	Coleman, F. B.	Austin
Bailey, H. B.	Ceylon	Braden, A. J.	Duluth	Collie, H. G.	McGregor
Baker, A. C.	Fergus Falls	Brady, P. J.	Hastings	Collins, Arthur N.	Duluth
Baker, A. L.	Kasson	Brand, W. A.	Redwood Falls	Collins, Herbert O.	Minneapolis
Baker, A. T.	Minneapolis	Branton, B. J.	Willmar	Collins, J. S.	Caledonia
Baker, E. L.	Minneapolis	Bratrud, O. E.	Fertile	Collins, Homer C.	Duluth
Baker, G. L.	Ada	Bratrud, Theodore	Warren	Colvin, A. R.	St. Paul
Baker, Looe	Minneapolis	Bray, C. W.	Biwabik	Comstock, A. E.	St. Paul
Balcome, F. E.	St. Paul	Bray, E. R.	St. Paul	Condit, W. H.	Minneapolis
Balcom, G. G.	Lake Wilson	Brede, W. G.	Minneapolis	Conley, A. T.	Cannon Falls
Baldwin, L. B.	Minneapolis	Breitenbach, O. C.	Frazee	Conley, H. E.	Cannon Falls
Balfour, Donald	Rochester	Briggs, F. W.	Moorhead	Cook, Paul B.	St. Paul
Ball, C. R.	St. Paul	Brigham, Charles F.	St. Cloud	Cooney, H. C.	Princeton
Ballard, J. A.	Hayward, Wis.	Brigham, F. T.	Watkins	Corbett, J. F.	Minneapolis
Barber, J. P.	Minneapolis	Brimhall, J. B.	St. Paul	Corrigan, J. E.	Baudette
Barclay, A.	Cloquet	Broberg, J. A.	Blue Earth	Cosman, E. O.	Minneapolis
Barnard, Elizabeth M.	Minneapolis	Brooks, Charles N.	Minneapolis	Coulter, Chas. F.	Wadena
Barney, Leon A.	Duluth	Brooks, D. F.	St. Paul	Covenry, W. A.	Duluth
Barr, W. H.	Wells	Brooks, G. F.	Hibbing	Covey, Herman W.	St. Peter
Barrett, E. E.	Glencoe	Brown, A. H.	Pipestone	Cowern, E. W.	North St. Paul
Barron, Moses	Minneapolis	Brown, E. D.	Minneapolis	Cowles, D. C.	Minneapolis
Barness, Nellie	St. Paul	Brown, E. I.	St. Paul	Craddock, W. L.	Pine Island
Barton, E. R.	Frazee	Brown, E. J.	Minneapolis		
		Brown, J. C.	St. Paul		



Crafts, L. M. . . . . Minneapolis  
 Crandall, A. M. . . . . Fairfax  
 Cremer, M. H. . . . . Red Wing  
 Cremer, P. H. . . . . Hastings  
 Cress, P. J. . . . . Ellsworth  
 Cressy, F. J. . . . . Granite Falls  
 Crewe, John E. . . . . Rochester  
 Crispin, E. L. . . . . Rochester  
 Crosby, J. A. . . . . Minneapolis  
 Cross, J. G. . . . . Minneapolis  
 Crowe, J. H. . . . . Virginia  
 Crume, Geo. P. . . . . Minneapolis  
 Cuff, W. S. . . . . St. Paul  
 Curran, G. R. . . . . Mankato  
 Cutts, G. A. C. . . . . Grove City  
 Dahl, G. A. . . . . Mankato  
 Dahl, J. A. . . . . Minneapolis  
 Dahlquist, G. W. . . . . Lancaster  
 Daighault, Oscar . . . . . Benson  
 Dailey, W. J. . . . . Blooming Prairie  
 Dampier, C. E. . . . . Crookston  
 Daniels, J. W. . . . . St. Peter  
 Daniels, H. W. . . . . Crookston  
 Danielson, Karl A. . . . . Litchfield  
 Darling, J. E. . . . . St. Paul  
 Darrow, Daniel C. . . . . Moorhead  
 Daugherty, E. B. . . . . St. Paul  
 Daugherty, L. E. . . . . St. Paul  
 Davidsen, P. C. . . . . Willmar  
 Davis, F. U. . . . . Faribault  
 Davis, F. W. . . . . Alden  
 Davis, Herbert . . . . . St. Paul  
 Davis, Horace S. . . . . Duluth  
 Davis, L. A. . . . . Dalton  
 Davis, William . . . . . St. Paul  
 De Boer, Hermanus . . . . . Edgerton  
 Dedolph, Karl . . . . . St. Paul  
 Dempsey, D. P. . . . . Kellogg  
 Denman, A. V. . . . . Mankato  
 Dennis, W. A. . . . . St. Paul  
 Denny, C. F. . . . . St. Paul  
 Desmond, M. A. . . . . Akeley  
 Dewar, J. Evan . . . . . St. Paul  
 Dewey, G. W. . . . . Fairmont  
 Deziel, G. . . . . Minneapolis  
 Dickey, R. R. . . . . Minneapolis  
 Dickson, T. H., Jr. . . . . St. Paul  
 Disen, C. F. . . . . Minneapolis  
 Dittman, Geo. C. . . . . St. Paul  
 Dodge, Franklin A. . . . . Le Sueur  
 Dodge, W. M. . . . . Farmington  
 Dohm, A. J. . . . . St. Paul  
 Dohm, C. L. . . . . St. Paul  
 Dolan, C. P. . . . . Worthington  
 Doms, H. C. . . . . Slayton  
 Donaldson, C. A. . . . . Minneapolis  
 Donovan, J. J. . . . . Litchfield  
 Dorge, R. I. . . . . Dassel  
 Douglas, F. A. . . . . St. Cloud  
 Douglass, J. E. . . . . Thief River Falls  
 Drake, C. B. . . . . St. Paul  
 Drake, C. R. . . . . Minneapolis  
 Drake, F. A. . . . . Lanesboro  
 Dredge, H. P. . . . . Sandstone  
 Drenning, F. C. . . . . Duluth  
 Dreisbach, N. . . . . Minneapolis  
 Drought, W. W. . . . . Fergus Falls  
 Dryden, F. M. . . . . Crookston  
 DuBois, Julian A. . . . . Sauk Center  
 Duclos, J. A. . . . . Henderson  
 Dudley, J. H. . . . . Windom  
 Duncan, H. . . . . Marietta  
 Dunlop, A. H. . . . . Crookston  
 Dunn, John B. . . . . St. Cloud  
 Dunsmoor, F. A. . . . . Minneapolis  
 Durgin, F. L. . . . . Winnebago  
 Earl, George A. . . . . St. Paul  
 Earl, R. O. . . . . St. Paul  
 Eaton, W. H. . . . . Adrian  
 Eberlin, E. A. . . . . Glenwood  
 Eby, Cyrus B. . . . . Spring Valley  
 Edmunds, I. L. . . . . Clearwater  
 Egan, John M. . . . . Minneapolis  
 Eggen, O. K. . . . . Minneapolis  
 Ehmkke, W. C. . . . . Willow River  
 Ehrley, Clara S. . . . . St. Peter  
 Eisenman, W. G. . . . . Chisholm  
 Eitel, Geo. G. . . . . Minneapolis  
 Ekblad, J. W. . . . . Duluth  
 Eklund, J. J. . . . . Duluth  
 Elsey, J. R. . . . . Glenwood  
 Engberg, Edw. John . . . . St. Paul  
 Engstad, J. E. . . . . Minneapolis  
 Erb, Frederick A. . . . . Minneapolis  
 Erdmann, Chas. A. . . . . Minneapolis  
 Ericson, J. G. . . . . Minneapolis  
 Ernest, Geo. C. . . . . St. Paul  
 Ertel, E. Q. . . . . Ellendale  
 Eshelby, E. C. . . . . St. Paul

Esser, John . . . . . Perham  
 Estrem, C. O. . . . . Fergus Falls  
 Eusterman, Geo. . . . . Rochester  
 Evert, J. A. . . . . Brainerd  
 Ewens, H. B. . . . . Virginia  
 Ewing, C. F. . . . . Wheaton  
 Fahey, E. W. . . . . Duluth  
 Farmer, J. C. . . . . McKinley  
 Farr, R. E. . . . . Minneapolis  
 Farrage, James . . . . . Park Rapids  
 Farrish, R. C. . . . . Sherburn  
 Fawcett, Chas. E. . . . . Stewartville  
 Feidt, W. W. . . . . Minneapolis  
 Fenger, P. N. . . . . Askov  
 Ferguson, J. C. . . . . St. Paul  
 Ferguson, James B. . . . . St. Paul  
 Field, Merton . . . . . St. Peter  
 Field, Emily W. . . . . Minneapolis  
 Finley, W. F. . . . . Lonsdale  
 Fisher, Carl . . . . . Rochester  
 Fischer, H. P. . . . . Shakopee  
 Fischer, O. F. . . . . Houston  
 Fischer, P. M. . . . . Shakopee  
 FitzGerald, Don F. . . . . Minneapolis  
 Fitzgerald, E. T. . . . . Morris  
 Fjelstad, C. A. . . . . Red Wing  
 Flagg, S. D. . . . . St. Paul  
 Fleischhauer, D. S. . . . . Wabasha  
 Fleming, A. S. . . . . Minneapolis  
 Fleming, James . . . . . Cloquet  
 Flinn, Thos. E. . . . . Redwood Falls  
 Flom, A. O. . . . . Cokato  
 Flower, Ward Z. . . . . Gibbon  
 Fogarty, Chas. W. . . . . St. Paul  
 Forbes, R. S. . . . . Duluth  
 Foster, Burnside . . . . . St. Paul  
 Fox, Jno. M. . . . . Minneapolis  
 Francis, S. O. . . . . White Bear  
 Franzen, H. G. . . . . Minneapolis  
 Freeborn, J. A. . . . . Fergus Falls  
 Freeman, Charles D. . . . . St. Paul  
 Freeman, Geo. H. . . . . Willmar  
 Freeman, J. P. . . . . Glenville  
 French, E. A. . . . . Plainview  
 Friesleben, William . . . . Sauk Rapids  
 Frisch, Frank P. . . . . Kimball  
 Fritsche, L. A. . . . . New Ulm  
 Froehlich, H. W. . . . . Thief River Falls  
 Froshaug, S. J. . . . . Benson  
 Frost, E. H. . . . . Willmar  
 Fullerton, W. S. . . . . St. Paul  
 Fulton, John F. . . . . St. Paul  
 Furber, W. W. . . . . Cottage Grove  
 Gaag, E. W. . . . . Great Falls, Mont.  
 Gaines, E. C. . . . . Buffalo Lake  
 Gammell, F. H. . . . . Thief River Falls  
 Gammell, H. W. . . . . Madison  
 Garand, J. H. . . . . Dayton  
 Gardner, E. L. . . . . Minneapolis  
 Gates, C. E. . . . . Goodhue  
 Gates, G. L. . . . . Winona  
 Gates, J. A. . . . . Kenyon  
 Gauger, E. C. . . . . St. Paul  
 Gaugh, W. H. . . . . Granada  
 Geer, E. F. . . . . St. Paul  
 Geist, Emil S. . . . . Minneapolis  
 Geist, Geo. A. . . . . St. Paul  
 Gelz, John J. . . . . Richmond  
 Gerber, Lou M. . . . . Jasper  
 Germon, Chas. . . . . Balaton  
 Ghent, M. M. . . . . St. Paul  
 Ghostley, Mary . . . . . International Falls  
 Giere, E. O. . . . . Watertown, S. D.  
 Giffin, H. Z. . . . . Rochester  
 Gillfillan, J. S. . . . . St. Paul  
 Gilkey, S. E. . . . . Watson  
 Gilkinson, A. J. . . . . Osakis  
 Gillespie, N. H. . . . . Duluth  
 Gillette, A. J. . . . . St. Paul  
 Gilmore, R. T. . . . . Bemidji  
 Giroux, A. A. . . . . Duluth  
 Gleysteen, D. . . . . Lamberton  
 Glycer, R. T. . . . . Brocton  
 Goehrs, H. W. . . . . Melrose  
 Goltz, E. V. . . . . St. Paul  
 Gordon, G. J. . . . . Minneapolis  
 Gosslee, A. F. . . . . Pillager  
 Gosslee, G. L. . . . . Moorhead  
 Gotham, C. L. . . . . St. Paul  
 Graham, C. . . . . Rochester  
 Graham, David . . . . . Duluth  
 Graham, R. . . . . Duluth  
 Gramenz, F. . . . . Albert Lea  
 Granger, C. T. . . . . Rochester  
 Granger, Gertrude B. . . . . Rochester  
 Gratzek, Thos. . . . . St. Paul  
 Gravelle, J. M. A. . . . . St. Paul

Graves, Carlton . . . . . Aitkin  
 Grawn, F. A. . . . . Duluth  
 Gray, C. E. . . . . Rush City  
 Gray, F. D. . . . . Marshall  
 Green, E. F. . . . . St. Cloud  
 Greene, Charles Lyman . . . . St. Paul  
 Green, E. K. . . . . Minneapolis  
 Griffin, P. J. . . . . St. Paul  
 Grimes, H. B. . . . . Madelia  
 Grivelli, Chas. T. . . . . Young America  
 Grivelly, Hans J. . . . . Waynesburg, Ky.  
 Groll, S. . . . . Minneapolis  
 Grover, F. C. . . . . Duluth  
 Guilford, H. M. . . . . Minneapolis  
 Guilfoyle, J. P. . . . . Stephens  
 Gulde, W. C. . . . . Minneapolis  
 Gullixson, Andrew . . . . . Bricelyn  
 Gunderson, H. J. . . . . Minneapolis  
 Gunderson, R. M. . . . . Lake Park  
 Gunz, A. N. . . . . Centre City  
 Hacking, F. H. . . . . Minneapolis  
 Haessly, S. B. . . . . Faribault  
 Hagen, G. L. . . . . Minneapolis  
 Hagen, O. E. . . . . Butterfield  
 Hagen, Ole J. . . . . Moorhead  
 Haggard, G. D. . . . . Minneapolis  
 Haight, G. G. . . . . Audubon  
 Haines, J. H. . . . . Stillwater  
 Hall, A. R. . . . . St. Paul  
 Hall, J. M. . . . . Minneapolis  
 Hall, Pearl M. . . . . Minneapolis  
 Hall, W. A. . . . . Minneapolis  
 Hallenbeck, Dorr F. . . . . Rochester  
 Hallowell, W. H. . . . . Minneapolis  
 Hamel, C. E. . . . . Minneapolis  
 Hamilton, A. S. . . . . Minneapolis  
 Hammermeister, T. F. . . . . New Ulm  
 Hammerstrand, F. L. . . . . Sacred Heart  
 Hammes, E. M. . . . . St. Paul  
 Hand, W. R. . . . . Elbow Lake  
 Haney, C. L. . . . . Duluth  
 Hansen, Henry V. . . . . New London  
 Hanson, A. M. . . . . Faribault  
 Hanson, H. H. . . . . Milan  
 Hard, A. D. . . . . Marshall  
 Harding, J. C. . . . . St. Paul  
 Hare, E. R. . . . . Minneapolis  
 Harrah, J. W. . . . . Minneapolis  
 Harriman, L. . . . . Howard Lake  
 Harrington, C. D. . . . . Minneapolis  
 Harrison, E. E. . . . . West Concord  
 Hart, A. B. . . . . Owatonna  
 Hart, M. J. . . . . LeRoy  
 Hart, Bruce D. . . . . Round Lake  
 Hartung, H. A. . . . . Le Sueur  
 Hartzell, Thos. B. . . . . Minneapolis  
 Haskell, A. D. . . . . Alexandria  
 Haugan, O. M. . . . . Fergus Falls  
 Hauge, M. M. . . . . Clarkfield  
 Haugen, G. T. . . . . Battle Lake  
 Haugseth, Enoch . . . . . Twin Valley  
 Havens, J. G. W. . . . . Cloquet  
 Haverfield, Addie R. . . . . Minneapolis  
 Hawkins, E. P. . . . . Montrose  
 Hawkins, V. J. . . . . St. Paul  
 Hayes, James M. . . . . Browns Valley  
 Hayes, M. F. . . . . Nashauk  
 Haynes, B. H. . . . . St. James  
 Haynes, F. E. . . . . Minneapolis  
 Haywood, Geo. M. . . . . Minneapolis  
 Head, Geo. D. . . . . Minneapolis  
 Heagerty, W. B. . . . . Mazeppa  
 Healy, R. T. . . . . Pierz  
 Heath, A. C. . . . . St. Paul  
 Hedback, A. E. . . . . Minneapolis  
 Hegge, C. A. . . . . Austin  
 Hegge, O. H. . . . . Austin  
 Helmark, J. H. . . . . Hawley  
 Heise, W. F. C. . . . . Winona  
 Helk, H. H. . . . . Minneapolis  
 Helland, G. M. . . . . Spring Grove  
 Helland, J. W. . . . . Maynard  
 Henderson, M. S. . . . . Rochester  
 Henderson, A. Powell River, B. C.  
 Hendrickson, J. F. . . . . Minneapolis  
 Hengstler, W. H. . . . . Osakis  
 Henriksen, H. G. . . . . New Market  
 Henry, C. E. . . . . Minneapolis  
 Hensel, Charles N. . . . . St. Paul  
 Henslin, A. E. . . . . LeRoy  
 Herron, D. A. . . . . Comfrey  
 Hesselgrave, S. S. . . . . St. Paul  
 Heyerdale, O. C. . . . . Rochester  
 Hieber, H. G. . . . . Thief River Falls  
 Hielscher, Helen H. . . . . Mankato  
 Hielscher, J. A. . . . . Mankato  
 Higbee, Paul A. . . . . Minneapolis

Higgins, J. H. .... Minneapolis  
 Hilbert, Pierre A. .... Melrose  
 Hilger, A. W. .... St. Paul  
 Hilger, D. D. .... St. Paul  
 Hilger, J. M. .... Iona  
 Hilger, L. A. .... St. Paul  
 Hill, Eleanor J. .... Minneapolis  
 Hill, R. J. .... Minneapolis  
 Hirschboech, F. J. .... Buhl  
 Hirschfeld, Adolph. .... Minneapolis  
 Hirschfeld, M. S. .... Duluth  
 Hitchings, W. S. .... Lakefield  
 Hobbs, C. A. .... Minneapolis  
 Hodge, S. V. .... Minneapolis  
 Hodgson, H. H. .... Crookston  
 Hoegh, Knut. .... Minneapolis  
 Hoff, Alfred. .... St. Paul  
 Hoff, Peder A. .... St. Paul  
 Hoffmann, J. .... Henning  
 Hoidale, A. D. .... Tracy  
 Hoiland, A. S. .... Argyle  
 Hoyt, Edward E. .... Detroit  
 Holbrook, J. S. .... Mankato  
 Holcomb, J. T. .... Marine Mills  
 Holcomb, O. W. .... St. Paul  
 Holdridge, Geo. A. .... Foley  
 Holl, P. M. .... Minneapolis  
 Hollands, Wm. H. .... Fisher  
 Holm, P. F. .... Wells  
 Holman, C. J. .... Mankato  
 Holmberg, L. J. .... Canby  
 Holst, C. F. .... Little Falls  
 Holst, J. B. .... Little Falls  
 Holte, H. .... Crookston  
 Horning, D. W. .... Minneapolis  
 Houston, C. A. .... Park Rapids  
 Hovorka, T. W. .... Albany  
 Hubert, R. I. .... St. Paul  
 Huenekens, E. J. .... Minneapolis  
 Hulburd, H. L. .... Morris  
 Humphrey, E. W. .... Moorhead  
 Hunt, F. N. .... Fairmont  
 Hunt, H. E. .... St. Paul  
 Hunt, R. C. .... Fairmont  
 Hunt, W. A. .... Northfield  
 Hunte, A. F. .... Truman  
 Hursh, M. M. .... Grand Rapids  
 Huxley, F. R. .... Faribault  
 Hvoslef, Jakob. .... Minneapolis  
 Hvoslef, J. C. .... Lanesboro  
 Hynes, James. .... Minneapolis  
 Hynes, J. E. .... Minneapolis

Ide, A. W. .... Brainerd  
 Iden, B. F. .... Minneapolis  
 Ingerson, Carl A. .... St. Paul  
 Irvine, H. G. .... Minneapolis  
 Jacobs, J. C. .... Willmar  
 Jacquot, G. L. .... Ivanhoe  
 James, J. H. .... Mankato  
 Jamieson, Earl. .... Walnut Grove  
 Jellison, E. R. .... Cokato  
 Jensen, J. C. .... Hendricks  
 Jensen, M. J. .... Minneapolis  
 Jensen, T. J. .... Duluth  
 Johnson, A. E. .... Madison  
 Johnson, A. E. .... Minneapolis  
 Johnson, A. E. .... Red Wing  
 Johnson, Asa M. .... St. Paul  
 Johnson, C. H. .... Austin  
 Johnson, Carl M. .... Montevideo  
 Johnson, Christian. .... Willmar  
 Johnson, E. W. .... Bemidji  
 Johnson, Geo. L. .... Newfolden  
 Johnson, Hans. .... Kerkhoven  
 Johnson, H. C. .... St. Paul  
 Johnson, H. M. .... Dawson  
 Johnson, H. P. .... Fairmont  
 Johnson, James A. .... Minneapolis  
 Johnson, Julius. .... Minneapolis  
 Johnson, Nimrod A. .... Minneapolis  
 Johnson, O. F. .... Winthrop  
 Johnson, O. V. .... Sebeka  
 Johnson, S. M. .... Buhl  
 Johnston, E. B. .... Benson  
 Jones, A. W. .... Red Wing  
 Jones, D. C. .... St. Paul  
 Jones, D. N. .... Minneapolis  
 Jones, E. M. .... St. Paul  
 Jones, Herbert W. .... Minneapolis  
 Jones, W. A. .... Minneapolis  
 Josewich, Alex. .... Minneapolis  
 Joyce, Geo. T. .... Rochester  
 Judd, F. S. .... Rochester  
 Just, A. A. .... Crookston  
 Kabrick, O. A. .... Olin  
 Kaess, A. J. .... Fargo, N. D.  
 Kahala, Arthur. .... Erskine  
 Kalinoff, D. .... Stillwater

Kamp, Byron A. .... Albert Lea  
 Kanne, C. W. .... Arlington  
 Karn, B. R. .... Ortonville  
 Kavanagh, K. S. .... Minneapolis  
 Kaufman, Wm. C. .... Appleton  
 Kean, N. D. .... Coleraine  
 Keats, Julia M. Jacobson. ....  
 Keene, L. M. .... Antelope, Mont.  
 Kelly, B. W. .... Alexandria  
 Kelly, E. S. .... Aitkin  
 Kelly, E. S. .... Minneapolis  
 Kelly, John V. .... St. Paul  
 Kelly, Paul H. .... St. Paul  
 Kelly, T. C. .... Mankato  
 Kemp, A. F. .... Mankato  
 Kendrick, W. N. .... Spring Valley  
 Kennedy, C. C. .... Minneapolis  
 Kennedy, Jane F. .... Minneapolis  
 Kennedy, R. R. .... Minneapolis  
 Kenyon, Paul E. .... Wadena  
 Kern, M. J. .... St. Cloud  
 Kerns, H. .... Granite Falls  
 Kerrick, Stanley E. .... Minneapolis  
 Kesting, Herman. .... St. Paul  
 Keyes, C. R. .... Duluth  
 Keyes, E. D. .... Winona  
 Kibbe, O. A. .... Canton  
 Kiefer, M. A. .... Sleepy Eye  
 Kierland, P. E. .... Harmony  
 Kiesling, I. H. .... Hibbing  
 Kilbourne, A. F. .... Rochester  
 Kimball, H. H. .... Minneapolis  
 King, Emil. .... Fulda  
 King, E. A. .... Minneapolis  
 King, W. S. .... Eveleth  
 Kirghis, A. J. .... St. Cloud  
 Kirk, A. B. .... Chisholm  
 Kirsch, Ralph L. .... Crookston  
 Kistler, A. S. .... St. Paul  
 Kistler, C. M. .... Minneapolis  
 Kittelson, T. N. .... Fergus Falls  
 Kittelson, J. S. .... Crookston  
 Klein, Harry. .... Duluth  
 Klein, H. N. .... St. Paul  
 Knauff, M. K. .... Two Harbors  
 Knickerbocker, Frank H. .... Staples  
 Knight, H. L. .... Minneapolis  
 Knight, R. R. .... Minneapolis  
 Knight, Ralph T. .... Minneapolis  
 Koch, John. .... Blackduck  
 Kohler, Geo. A. .... Minneapolis  
 Koller, L. R. .... Minneapolis  
 Kolset, Carl D. .... Duluth  
 Kraft, Peter. .... Duluth  
 Kriedt, Dan'l. .... Minneapolis  
 Kucera, W. J. .... New Prague  
 Kuhlmann, August. .... Melrose  
 Kurz, John. .... Cook  
 Kusske, A. L. .... Hutchinson  
 Kuth, Jos. R. .... Duluth  
 Kyello, O. A. .... Cokato  
 Laird, A. T. .... Duluth  
 Lajoie, J. M. .... Minneapolis  
 Lamb, Harold L. .... Sauk Center  
 Lande, Wm. B. .... St. Paul  
 Landeen, F. G. .... Stillwater  
 Landenberger, John. .... New Prague  
 Lane, Laura A. .... Faribault  
 Langenderfer, F. V. .... St. Paul  
 Lankester, Howard. .... St. Paul  
 Lannin, J. C. .... Mabel  
 Lapiere, C. A. .... Minneapolis  
 Larsen, C. L. .... St. Paul  
 Larsen, O. O. .... Detroit  
 La Rue, B. F. .... Appleton  
 Laughlin, J. T. .... Grey Eagle  
 Laurent, A. A. .... Minneapolis  
 La Vake, R. T. .... Minneapolis  
 Lawler, F. J. .... Minneapolis  
 Leach, W. D. .... Callaway  
 Leahy, Bartholomew. .... St. Paul  
 Leavitt, H. H. .... Minneapolis  
 Leavitt, Frederick E. .... St. Paul  
 Leck, Clifford C. .... Austin  
 Le Clerc, Joseph E. .... Le Sueur  
 Lee, John W. .... Minneapolis  
 Lee, K. J. .... Minneapolis  
 Lee, Thos. G. .... Minneapolis  
 Lee, W. A. .... Underwood  
 Lee, W. P. .... Northfield  
 Leebens, John H. .... Lismore  
 Leibold, H. H. .... Parkers Prairie  
 Leicht, Oswald. .... Winona  
 Leigh, H. J. .... Lakefield  
 Leitch, Arch. .... St. Paul  
 Leland, M. N. .... Minneapolis  
 Leland, J. T. .... Herman  
 Lemieux, Israel. .... Red Lake Falls  
 Lenont, C. B. .... Virginia

Lepak, F. J. .... Duluth  
 Lerche, Wilhelm. .... St. Paul  
 Lester, C. A. .... Winona  
 Leuty, Amos. .... Morris  
 Lewis, C. B. .... St. Cloud  
 Lewis, C. F. .... Austin  
 Lewis, Edwin J. .... Sauk Center  
 Lewis, J. B. .... South St. Paul  
 Lewis, J. D. .... Minneapolis  
 Lewis, W. W. .... St. Paul  
 Lexa, F. J. .... Lonsdale  
 Lichtenstein, H. M. .... Winona  
 Liedloff, A. G. .... Mankato  
 Lima, Ludwig. .... Montevideo  
 Lind, C. J. .... Minneapolis  
 Lindberg, A. C. .... North Branch  
 Linde, Herman. .... Cyrus  
 Lindsay, W. V. .... Winona  
 Linnemann, N. L. .... Duluth  
 Linner, H. P. .... Minneapolis  
 Linton, W. B. .... Rochester  
 Litchfield, J. T. .... Minneapolis  
 Little, De Willis. .... Appleton  
 Little, J. W. .... Minneapolis  
 Little, W. J. .... St. Paul  
 Litzberg, J. C. .... Minneapolis  
 Lloyd, H. J. .... Lake Crystal  
 Loberg, A. E. .... Minneapolis  
 Logan, A. H. .... Rochester  
 Lommen, A. P. .... Lanesboro  
 Long, Jesse. .... Minneapolis  
 Love, Geo. A. .... Preston  
 Lowe, L. M. .... Glyndon  
 Lowe, Thomas. .... Pipestone  
 Lowthian, G. H. .... Fulton, S. D.  
 Luck, Hilda. .... Mankato  
 Luedtke, G. H. .... Fairmont  
 Lufkin, H. M. .... St. Paul  
 Lum, C. E. .... Duluth  
 Lynam, Frank. .... Duluth  
 Lynch, Elizabeth. .... Winona  
 Lynch, J. L. .... Winona  
 Lynch, M. J. .... Minneapolis  
 Lyng, John A. .... Fergus Falls  
 Lysne, Henry. .... Minneapolis  
 McAuliffe, James. .... Duluth  
 McBroom, D. E. .... Adams  
 McCarthy, W. J. .... Madelia  
 McCarthy, W. R. .... St. Paul  
 McClanahan, J. H. .... White Bear  
 McCloud, C. N. .... St. Paul  
 McColom, C. A. .... Minneapolis  
 McComb, C. F. .... Duluth  
 McCoy, J. E. .... Ironton  
 McCoy, Mary K. .... Duluth  
 McCuen, J. A. .... Duluth  
 McCusker, C. F. .... Minneapolis  
 McDaniel, Orianna. .... Minneapolis  
 McDavitt, Thos. .... St. Paul  
 McDermott, T. E. .... Minneapolis  
 McDonald, A. L. .... Duluth  
 McDonald, H. N. .... Minneapolis  
 McDougald, D. W. .... Le Sueur  
 McDowall, J. P. .... Sauk Rapids  
 McEachran, A. .... Minneapolis  
 McGaughey, H. F. .... Winona  
 McGroarty, J. J. .... Easton  
 McGuigan, H. T. .... Red Wing  
 McHugh, R. F. .... Coleraine  
 McIntire, H. M. .... Eveleth  
 McIntosh, Harry C. .... St. Paul  
 McIntyre, E. H. .... Virginia  
 McIntyre, Geo. .... Minneapolis  
 McIntyre, G. W. .... St. Peter  
 McKaig, C. E. .... Pine Island  
 McKeon, James. .... Montgomery  
 McKeon, Owen. .... St. Paul  
 McKeown, E. G. .... Edgerton  
 McLaren, Jennette M. .... St. Paul  
 McLaughlin, E. M. .... Winona  
 McLaughlin, J. A. .... Minneapolis  
 McMahon, D. J. .... Raymond  
 McNevin, C. F. .... St. Paul  
 MacDonald, A. E. .... St. Paul  
 MacDonald, D. A. .... Minneapolis  
 MacDonald, I. C. .... Minneapolis  
 MacLaren, Archibald. .... St. Paul  
 Macnie, J. S. .... Minneapolis  
 Magie, W. H. .... Duluth  
 Maitland, David P. .... Jackson  
 Maland, C. O. .... Minneapolis  
 Malmgren, C. V. .... Virginia  
 Manahan, Chas. A. .... Brownsdale  
 Manley, J. R. .... Duluth  
 Mann, A. T. .... Minneapolis  
 Manson, F. M. .... Worthington  
 Marcle, W. J. .... Minneapolis  
 Marcum, E. H. .... Bemidji  
 Mark, D. B. .... Minneapolis



Marken, M. H. . . . . Boyd  
 Martin, T. R. . . . . Duluth  
 Martineau, Jos. L. . . . . St. Paul  
 Matthews, Justus. . . . . Rochester  
 Maurer, E. L. . . . . Brownton  
 Maxeiner, Stanley R. . . . . Minneapolis  
 May, C. C. . . . . Adrian  
 May, C. E. . . . . Minneapolis  
 May, W. H. . . . . Minneapolis  
 Mayland, M. L. . . . . Faribault  
 Mayo, C. H. . . . . Rochester  
 Mayo, W. J. . . . . Rochester  
 Mead, Marion A. . . . . Minneapolis  
 Meade, Charles J. . . . . St. Paul  
 Meckstroth, C. W. . . . . Brandon  
 Mee, P. H. . . . . Osseo  
 Meierding, W. A. . . . . Springfield  
 Meighen, J. W. . . . . Ulen  
 Melby, Benedik. . . . . Blooming Prairie  
 Melby, O. F. . . . . Thief River Falls  
 Merrill, B. J. . . . . Stillwater  
 Merrill, J. E. . . . . Amboy  
 Merritt, Geo. F. . . . . St. Peter  
 Mesker, G. H. . . . . Olivia  
 Metcalf, F. W. . . . . Winton  
 Metcalf, J. N. . . . . Monticello  
 Meyer, E. L. . . . . Minneapolis  
 Meyerding, E. A. . . . . St. Paul  
 Meyerding, Henry W. . . . . Rochester  
 Michael, J. C. . . . . St. Paul  
 Michelson, H. E. . . . . Virginia  
 Milkelsen, M. . . . . Wells  
 Miller, Henrietta P. . . . . Cloquet  
 Miller, Hugo H. . . . . Harvey, N. D.  
 Miller, Victor L. . . . . Mankato  
 Miller, W. A. . . . . New York Mills  
 Millsbaugh, J. G. . . . . Little Falls  
 Mitchell, Frederick J. . . . . St. Paul  
 Mitchell, R. S. . . . . Grand Meadow  
 Moe, Anton J. . . . . Heron Lake  
 Moersch, Fred P. . . . . Minneapolis  
 Moffatt, A. G. . . . . Howard Lake  
 Mogilner, S. N. . . . . St. Paul  
 Moir, Wm. W. . . . . Minneapolis  
 Moloney, G. R. . . . . Belle Plaine  
 Molzahn, H. E. . . . . St. Paul  
 Monahan, J. A. . . . . Minneapolis  
 Monahan, Robert. . . . .  
 . . . . . International Falls  
 Moore, J. E. . . . . Minneapolis  
 Moore, W. J. . . . . Wood Lake  
 Moorehead, Martha B. . . . . Minneapolis  
 More, C. W. . . . . Eveleth  
 Morehouse, G. G. . . . . Owatonna  
 Moren, E. . . . . Minneapolis  
 Mork, B. O. . . . . Worthington  
 Morley, G. A. . . . . Crookston  
 Morrison, A. W. . . . . Minneapolis  
 Morsman, C. F. . . . . Hibbing  
 Morss, C. R. . . . . Zumbrota  
 Morse, John H. . . . . Minneapolis  
 Mortensen, N. G. . . . . St. Paul  
 Moses, Joseph, Jr. . . . . Adams  
 Mosse, F. R. . . . . Rochester  
 Moynihan, A. F. . . . . Sauk Center  
 Moynihan, T. J. . . . . St. Paul  
 Muir, Edwin S. . . . . Winona  
 Muir, J. B. . . . . Roseau  
 Murdock, A. J. . . . . Minneapolis  
 Murdock, H. G. . . . . Taylor's Falls  
 Murphy, E. F. . . . . St. Paul  
 Murphy, I. J. . . . . St. Paul  
 Murphy, W. R. . . . . Minneapolis  
 Murray, D. D. . . . . Duluth  
 Murray, Wm. R. . . . . Minneapolis  
 Mussey, R. D. . . . . Rochester  
 Naegeli, Frank. . . . . Fergus Falls  
 Nannestad, J. R. . . . . Albert Lea  
 Nass, H. A. . . . . Mabel  
 Nauth, W. W. . . . . Minneka  
 Nelson, C. P. . . . . Minneapolis  
 Nelson, E. H. . . . . Chisholm  
 Nelson, H. E. . . . . Crookston  
 Nelson, H. S. . . . . Minneapolis  
 Nelson, L. A. . . . . St. Paul  
 Nelson, M. S. . . . . Spring Grove  
 Nelson, N. A. . . . . Dawson  
 Neumann, C. A. . . . . Lewiston  
 Neumann, W. H. . . . . Lewiston  
 New, G. B. . . . . Rochester  
 Newhart, Horace. . . . . Minneapolis  
 Newkirk, H. D. . . . . Minneapolis  
 Newman, G. A. . . . . Stillwater  
 Nickerson, M. L. . . . . Minneapolis  
 Nickerson, W. S. . . . . Delavan  
 Nicholson, M. A. . . . . Duluth  
 Nippert, H. T. . . . . St. Paul  
 Nippert, L. A. . . . . Minneapolis  
 Nissen, Henrik . . . . . Minneapolis

Nordland, Martin. . . . . Robbinsdale  
 Norman, J. F. . . . . Crookston  
 Norred, C. H. . . . . Minneapolis  
 Noth, H. W. . . . . Minneapolis  
 Novak, E. E. . . . . New Prague  
 Nusbaum, D. H. . . . . Jackson  
 Nye, Katherine A. . . . . St. Paul  
 O'Brien, H. J. . . . . St. Paul  
 O'Connor, J. V. . . . . St. Paul  
 O'Donnell, J. E. . . . . Minneapolis  
 O'Hair, P. . . . . Waverly  
 O'Malley, W. P. . . . . St. Paul  
 Oberg, C. M. . . . . Minneapolis  
 Oberg, E. . . . . Minneapolis  
 Ogden, B. H. . . . . St. Paul  
 Ohage, Justus. . . . . St. Paul  
 Ohage, Justus, Jr. . . . . Dickenson, N. D.  
 Ohlinger, L. B. . . . . Rochester  
 Ohnstad, J. . . . . McIntosh  
 Olander, J. E. . . . . St. Paul  
 Oliver, C. I. . . . . Graceville  
 Olsen, S. H. . . . . Milaca  
 Olson, C. A. . . . . St. Paul  
 Olson, G. M. . . . . Minneapolis  
 Olson, Olaf A. . . . . Minneapolis  
 Olson, O. H. . . . . Erskine  
 Olson, R. G. . . . . Nicollet  
 Onsgard, C. K. . . . . Rushford  
 Onsgard, L. K. . . . . Houston  
 Oppegaard, M. O. . . . . Minneapolis  
 Oredson, O. A. . . . . Duluth  
 Orton, H. N. . . . . Minneapolis  
 Osborn, Lida . . . . . Mankato  
 Ostergren, E. W. . . . . St. Paul  
 Otto, H. C. . . . . Vergas  
 Overend, K. V. . . . . Kennedy  
 Owre, Oscar . . . . . Minneapolis  
 Palmer, W. L. . . . . Albert Lea  
 Pare, L. T. . . . . Duluth  
 Parker, E. H. . . . . Minneapolis  
 Parker, Owen W. . . . . Ely  
 Parks, Albert H. . . . . Minneapolis  
 Parsons, F. L. . . . . Mountain Iron  
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 Passer, A. A. . . . . Olivia  
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Warren, Edmund L. .... St. Paul  
 Warren, F. S. .... Faribault  
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# THE VALUE OF THE LITHOTRITE, AND SOME REMARKS ON THE REMOVAL OF FOREIGN BODIES FROM THE URINARY BLADDER\*

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MINNEAPOLIS

The lithotrite, such as is used today with very little modification, was first presented to the profession in 1876 by Henry J. Bigelow, of Boston. Previous to this time, stones in the bladder were crushed with instruments of less strength and on many sittings, the patient being allowed to pass the crushed fragments following each operation. Owing to the frequent instrumentation, the mortality was very high, and the necessity of completing the operation in one session became obvious.



Fig. 1. Fragments of old bougie and crushed stone removed from a man eighty-one years of age by the combined use of the lithotrite, evacuating apparatus, and cystoscopic forceps. At the top is a small bead (the arrow points to it), which mounted the end of the catheter, and was picked out of the bladder and removed through the cystoscope. The patient had a contracted meatus, and a stricture three inches from the end of the penis.

It having been conclusively shown, by Otis, that the urethra is larger throughout its entire course than at the meatus, it became evident that, by doing a meatotomy, it was possible to introduce evacuation tubes of considerable size,—from 29 to 32 or 34 Charrière scale. These, together with the Bigelow suction-bag and the perfection of lithotrites of greater strength, made it possible to complete the crushing of a stone and the evacuation of stone debris at one sitting. Its

use, then, became extremely popular with the profession, and the method was demanded even by the laity.

As is often the case with the really valuable methods of technic in surgery, the lithotrite came in for its share of condemnation, and probably not unjustly. It was used by many who did not handle it skillfully; and the deaths from injury to the posterior urethra and bladder, and complications, such as sepsis, urinary infiltration, hemorrhage, and stricture, led to a high mortality

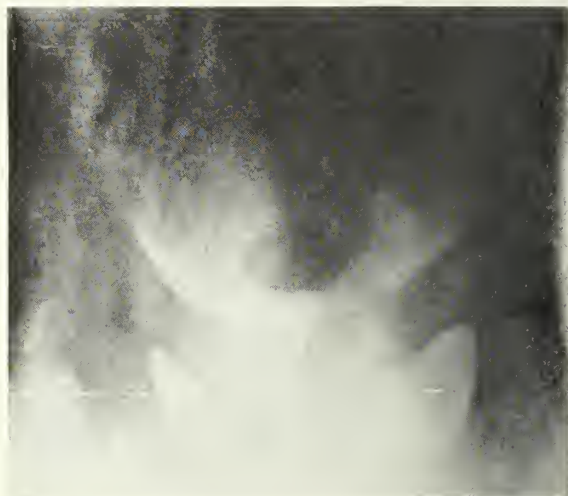


Fig. 2. Large phosphatic stone. Male patient, aged 34. The closed female blade lithotrite was used. It had to be withdrawn several times to remove the packed debris in the closed blade.

following its use. This resulted in its utilization falling into disfavor, for some time, in America. However, the operation of litholapaxy was taken over by English surgeons in Britain and India, and has been popular there to the present time. Dr. Keegan reports having crushed and removed as many as 10,073 stones.

Cystoscopic technic was not at a high point of efficiency at this time; and the use of this instrument, preceding and following the operation of litholapaxy, was not practiced. The wonderful improvement in cystoscopes and cystoscopic technic, enabling one to follow litholapaxy by a cystoscopic examination, and the perfection of forceps used through the cystoscope, making it

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Fig. 3a shows the x-ray of a large phosphatic stone removed by litholapaxy.

possible to pick from the bladder the few remaining pieces, are the chief reasons for the operation of litholapaxy becoming again the favorite method of removing stones from the urinary bladder.

I have found the lithotrite to be a safe and very useful instrument for removing various foreign bodies from, and crushing stones in, the urinary bladder. It is outside of the purpose of this paper to go into a detailed description of the



Fig. 3b shows the same stone after being crushed and removed. The three largest pieces are flat concentric shells from the outer part of the stone. They could not be picked up with the lithotrite, and were removed with the cystoscopic forceps at the heel of the cystoscope. After grasping and before withdrawing the stone, the urethra was filled with a lubricant along side the cystoscope by means of the tapering rubber-tipped syringe.



Fig. 4. Rubber tubing removed from the bladder of a man thirty-three years of age by means of the lithotrite.

methods of maneuvering the lithotrite in the bladder (this can be found in all the text-books on surgery); I shall therefore confine my remarks to the consideration of the indication and contra-indication to its use, and to such methods of technic as I have found it expedient to employ in a series of cases.

The presence of a stricture is probably the most favorite argument against the use of the lithotrite. If this is in the posterior urethra and of an aggravated sclerotic type, it is naturally an obstacle. Yet strictures of a moderate degree can be dilated to a caliber of sufficient size. If the constriction is in the anterior urethra it can be cut, preceding lithotripsy. This is illustrated in the following case:

A man, aged 81, had a circumcision performed thirty years ago which was followed by suppuration



Fig. 5. Lubricating syringe, with pointed rubber tip to facilitate the injection of a lubricant along side the cystoscope.

and sloughing of the skin of the penis. During the last twenty years he has suffered from a contracted condition at the meatus, and a stricture about three inches from the latter, necessitating the constant use of bougies. He suffered from severe cystitis and hematuria, and occasionally small pieces of concretion had passed with the urine. Cystoscopy could not be done, the urethra barely admitting a No. 12 French silver cannula. With the latter I could feel the presence of a stone. There being no palpable enlargement of the prostate through the rectum, and no residual urine, I decided to remove it by litholapaxy. A meatotomy and internal urethrotomy allowed the passage of the lithotrite. I constantly encountered stone, but at no time



could I grasp one of respectable size. On the first evacuation I learned that I was dealing with an old silk-web bougie encrusted with stone. Because of its size I had used the lithotrite with the perforated female blade, and the catheter had been cut in such convenient sizes that I was able to pick them all out with the cystoscopic forceps. (See Fig. 1.)

Obstructive conditions of the prostate often rule out the use of the lithotrite, yet such conditions, if of moderate degree, allow its use. It is necessary to use an instrument with long jaws,

reacting with contraction should be measured, and this quantity when filling the organ before introducing the lithotrite should never be exceeded. This makes it necessary to use a hand-syringe of about 100 c.c. capacity; and the use of the fountain-syringe should be deprecated.

The structure of the stone can be judged by cystoscopic inspection. If there is a history of passing calculi or gravel it is probably phosphatic; if phosphatic, the selection of a lithotrite



Fig. 6. Rubber enema-point removed from a bachelor forty-one years of age. (See text.)

and to raise the instrument more than ordinarily. I recently removed a stone in a patient 54 years of age who had a moderate adenomatous growth of the prostate at the neck of the bladder.

The size of the stone does not seem to preclude the use of the instrument, for stones as large as an apple have been removed by Nitze; however, if the bladder is small and contracted, and no

with a fenestrated female blade, allowing the male blade to push through, prevents the annoyance of the soft stone-detritus becoming packed, thus necessitating its removal. In December such a phosphatic stone (see Fig. 2) about the size of an egg, was removed at the Minneapolis City Hospital. The spoon, or the closed female blade, of the instrument was used, and it was



Fig. 7. Débris of a stone crushed and removed in my office under local anesthesia.

fluid can be kept in the same, it makes lithotripsy practically impossible.

To ascertain both the capacity of the bladder, and the nature of the structure of the stone prior to operation, seems to be a very important prerequisite in the operation of lithotripsy. The amount of fluid that the bladder will hold without



Fig. 8. Oxalate stone, of mulberry type, found in the bladder of a boy thirteen years of age. The bladder was contracted; and, owing to the extremely hard texture of the stone, it was not deemed advisable to use the lithotrite.

necessary to withdraw the lithotrite a number of times in order to remove the crushed stone, which became packed in the closed blade. (See the x-ray plate.) Some months after this an equally large stone was crushed with the fenestrated blade and there was no such annoyance. (See the plate.) Stones of harder texture are more

easily grasped, and better manipulated, by the original spoon-bill or closed-bill Bigelow instrument. Further, when grasping catheters or rubber tubing not yet brittle from age, one should always use the closed blade.

In June, 1914, I was consulted by a man thirty-three years of age for the probable presence of a piece of rubber tubing in the bladder. He stated that he had irrigated his bladder by means of a rubber tube, which he had made by cementing several smaller pieces together. On one occasion it seemed to him that he had not removed as much as he had introduced. Upon cystoscopic examination I could see the incrustated tube curled

uble in water, and the method of using it. I have always felt that the usual method of applying a lubricant to urethral instruments is wrong. If the instrument is large the lubricating jelly is very exquisitely wiped off by the lips of the meatus, and the instrument is passed through a dry urethra. To correct this error, one should use a catheter-tipped glass syringe of one-half ounce capacity with an asbestos packing (a syringe that works, and one seldom found in a hospital). (See Fig. 5.) The urethra is injected with this, and a part of it is massaged into the posterior urethra. Under such circumstances a lithotrite or tube passes very smoothly into the blad-



Fig. 9. An x-ray photograph showing two safety-pins. There is just a faint outline of the stone.

up, looking very much like a pretzel. It had been there about three weeks. The bladder was filled with eight ounces of water, and the tube was quickly and easily removed by means of the Bigelow lithotrite.

It is often impossible to remove encapsulated or diverticulated stones by this method, yet in the female they have been pulled into the bladder by means of forceps through a Kelly straight tube, then crushed and removed with forceps.

A few grave forms of cystitis which become aggravated by intravesical instrumentation had better be managed by the open operation, especially when the cystitis is not due to the stone.

I cannot emphasize too strongly the importance of the selection of a lubricant which is sol-

der, and much of the traumatism with bleeding is avoided. After its introduction a No. 3 tubing tied lightly about the penis will prevent the lubricant, as well as the water, from running out along side the instrument.

After crushing a stone there is often a thin shell from the outer part of the calculus, which is most difficult to pick up with the lithotrite. This can always be picked up with the cystoscopic forceps. When large, one can often risk pulling it through the urethra at the heel of the cystoscope to the meatus, where it can be picked up by the Kelly forceps. However, before the journey I generally slip a pointed piece of rubber tubing attached to the lubricating syringe by the side of the cystoscope, and inject the urethra full

of lubricating jelly. For this purpose a large direct cystoscope with a brilliant Tungsten lamp is ideal. It should be made with a perfectly smooth barrel of about 28 or 30 French caliber. This is fitted with a perforated window and a long forceps for picking up these few remaining pieces after litholapaxy. If this is not done, and pieces are left in the bladder, the operation cannot be a success. (See Fig. 3b.) If inspection of the bladder is difficult because of blood, a few drops of adrenalin in the irrigation fluid is very valuable.

The value of the lithotrite, and instruments for the extraction of foreign bodies, is greatly enhanced by a close familiarity with the mechanism. Practice on the outside, on a body similar to the one to be removed, in so far as possible, is valuable.

A rather unusual case of a foreign body in the bladder was that of a bachelor, aged 41, referred



Fig. 10. Cystoscope with a wire hook holding a safety-pin, which was pulled into the bore of the cystoscope, and removed.

to me by Dr. Matchan. He stated that in irrigating his bladder with warm water by means of an enema point attached to the hose of a fountain-syringe, the point had slipped into the bladder. It was of large size, and the use of the lithotrite for its removal occurred to me. Wishing to ascertain how it would crush, I obtained the other point of the fountain-syringe outfit. This I placed in a jar filled with water of the body temperature. I applied the lithotrite. On screwing the jaws together, this rubber point fractured with an explosion which sent the pieces all over the room. These were fine, sharp, and of various shapes. I decided that it would not be expedient to try to crush the point in the bladder. Several attempts were made to catch it between the jaws of the lithotrite in such a way that it could be extracted; but it floated, and was always at the top of the bladder, making it difficult to grasp it, either with the lithotrite or the cystoscopic forceps. By using Dr. Young's combined cystoscope and lithotrite it might have been possible to apply the forceps to the point in such a way that it could have been removed without supra-

pubic incision. The latter method was used. (See Fig. 6.)

On August 23, 1915, I cystoscoped a man at the Minneapolis City Hospital. He was twenty-eight years of age, and was admitted for calculus in the bladder. For one year he had had frequent and painful urination. There were blood and pus in the urine. There was a large calculus about two and one-half inches long and about three-quarters of an inch in diameter. In addition to this, I found a large safety-pin partially covered with stone. An x-ray picture was taken by Dr. Harrington, who stated that he was quite certain that there were two pins. A long exposure was necessary because of a poor machine, and there was also the possibility that the patient



Fig. 11. Two safety-pins. One was removed by means of a wire hook through the cystoscope. The other shows a piece of a large stone still attached to its loop end.

The calculus was so embedded that it was impossible to crush it sufficiently to allow removal through the cystoscope. The five pieces of calculus were picked out with the cystoscopic forceps.

had moved. (See x-ray plate.) Steel forceps generally slip upon grasping smooth, round-metal, hard-rubber, and glass objects; therefore, in this instance, a wire hook was made, which could be manipulated through the perforated window of the operating cystoscope. After removing the calculus from the pin, this hook was engaged in the loop of the latter, which was pulled into the bore of the cystoscope, and was easily and quickly removed. If the safety-pin had been open, as was first thought, owing to the bent condition of the pin-stem, this would also close the pin, as you pull the loop into the barrel of the cystoscope.

The other stone was three-quarters crushed, and the debris removed; but it was impossible to



crush the stone about the loop-end, for it seemed to adhere to the mucosa just at one side and below the vesicle neck. Therefore, I grudgingly did a suprapubic cystotomy, and removed the second pin as imbedded in the remaining adherent stone.

This case seems to emphasize the fact that all foreign bodies passed into the bladder through the urethra can be removed by the same route; however, the case is different if they become enormously encrusted or embedded. Most cases of small, uncomplicated stones can be removed by litholapaxy under local anesthesia with novocain, 2 per cent, or alypin, 4 per cent. An accompanying plate shows the détrit<sup>us</sup> of a stone

lowing all bladder operations, prevents or mitigates urethral chill and urinary infection.

#### CONCLUSIONS

In summing up the salient points it would seem:

1. That the lithotrite with certain limitations has a valuable place in genito-urinary surgery.
2. That the selection of the blade in respect to the kind of stone or foreign body to be removed is important.
3. That it is important to ascertain the capacity of the bladder before operation.
4. That the value of lubrication, such as described, should not be underestimated.



Fig. 12. Cystoscope and forceps holding a stone, showing the method of removing pieces which cannot be grasped with the lithotrite and are frequently too large to be pulled into the bore of the cystoscope. The urethra must be filled with an excess of lubricant to avoid injury to the mucosa.

crushed in my office in April. This was about the size of a large hazel-nut; and the entire operation was painless. On another occasion a stone as large as a pecan was crushed and removed at 2 P. M., the patient leaving the city at 11:00 A. M. the next morning. (See Fig. 7.) These two cases strongly favor this method, as against the longer convalescence of a suprapubic section. Larger ones requiring time often necessitate the use of gas or gas combined with ether. In case of adults foreign bodies, such as pins, rubber tubing, or catheters, hair-pins, safety-pins, and small objects, can be removed under local anesthesia; for children, smaller lithotrites and evacuation-tubes have been constructed; and this is rapidly becoming the method *par excellence*. Irrigation with 1-1000 silver-nitrate solution fol-

5. That cystoscopy, before and after litholapaxy, is paramount. The cystoscope must be as large as will pass, with a brilliant light, irrigating, and equipped with a perforated window, and forceps for picking out the one or few remaining pieces of stone. A cystoscope with this equipment is exceedingly useful for removing various kinds of objects.

6. That instruments to suit the individual case can be made, as was done for removal of the safety-pin.

7. That a great number of stones and foreign bodies can be removed under local anesthesia.

8. That the trans-urethral method, with the exception of such contra-indications as have been mentioned, is superior to suprapubic section for removing stones and foreign bodies from the urinary bladder.

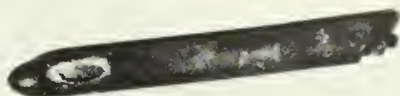


Fig. 13. Piece of a catheter removed with the cystoscopic forceps through a No. 24 direct cystoscope in a male patient, at the Minneapolis City Hospital, December 3, 1915.

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## THE HIGH COST OF DRUGGING

The war has accomplished something more than the killing and maiming of hundreds of thousands of people; it has cut off a large list of drugs that were formerly imported from other countries, and many drugs have risen in price to such an extent that the doctors will have to go back again to potions and herbs. If the supply of calomel, however, keeps up we may be able to worry along.

It has been said that Germany's direct part in the rise of prices of drugs has been very much exaggerated. It has been shown that many other countries have been absorbing the products, not only from Germany, but from England and France; and now these importers are coming to the United States, bidding against one another, and incidentally boosting the prices in their efforts at competitive buying, so that the war is not the entire cause of the high price of medicines. For instance, the price of acetanilid before the war was thirty cents a pound; now it is \$1.75. It would be a good thing if the acetanilid product could be wiped off the face of the earth, because it is a dangerous drug and is the basis of many tablets, pills, and other compounds which are more or less harmful. The old phenacetin, which is now known as acetphenetidin, formerly

sold at \$1.75 per pound, now sells at \$22.00 a pound. Carbolic acid has gone from fifteen cents to \$2.00. Salicylic acid from thirty cents to \$5.00. Bismuth subnitrate from \$2.00 to \$3.50. Caffeine from \$3.50 a pound to \$12.00. All potash preparations have increased in amount, particularly bromides. Saccharine has risen from \$1.75 to \$17.00 per pound. Aspirin was quoted at forty cents per pound before the war, and is now ninety cents. It is questionable, however, whether there is any real aspirin on the market at the present time. This statement is made from the fact that so much aspirin has been prescribed in the last few years that it seems impossible for any country to have obtained a sufficient amount to last over this length of time.

The time to retrench in the reckless using of drugs has come, and the doctors and the people would profit by the use of more simple remedies.

## THE MINNESOTA NARCOTIC LAW

The state legislature of Minnesota saw fit a year ago to pass a bill which became operative January 1, 1916, and which covers the points of the Harrison Federal bill, except that the Minnesota bill extends its protection to the public, so as to make chloral-hydrate a drug which can be prescribed only by a physician. The usefulness of this bill is very much impaired, because it permits the use of chloral preparations which contain 125 grains to each ounce. That is practically 15 grains to each dram. Any preparation containing over 125 grains to the ounce comes under the Minnesota narcotic law. The absurd side of this supposed protective provision is, that the lay people may buy these drugs from any druggist in proprietary forms and take any amount they see fit. Not to mention any names or to discredit any pharmaceutical product, the drug called "Somnos" declares on the label that there is no free chloral-hydrate in the preparation, and the chloral compound is represented to contain only 25 grains to the ounce. In order to get a sufficient dose, patients can take from one to three or four ounces, thus getting 75 to 100 grains at a time. This amount of chloral, long continued, is apt to produce muscular and nerve degeneration, and, it is claimed by some writers, a mental degeneration, as well. Through some curious mechanism, people who take chloral in such doses seem to be able to stand large and repeated doses without apparent injuries, the possibilities being that the injury or change in the muscle or nerve tracts comes later. The state law

therefore, does not cover the sale of "Bromidia," which contains bromides, chloral, opium, and Indian hemp; consequently, if patients can buy this preparation in pound lots, as they commonly do, they regulate the dose to suit their own group of symptoms, and the result is that overdoses are usually employed.

Under such circumstances it is difficult to see wherein the state narcotic law is of any real benefit. Of course, it re-enforces the supposed restriction of the Harrison law, but it does not go far enough when it permits the purchase of specific drugs named in the law without a doctor's prescription. The only way to regulate the sale of these things is to amend the bill so that any preparation containing narcotic drugs shall be sold only by the druggist with the prescription of a doctor who has a United States registry license number. Undoubtedly, a good many people are suffering from nervous and mental troubles, probably from degenerative troubles of other kinds, who are secretly taking compounds of this order.

With the recent decision of Federal Judge Booth, the Harrison law has been weakened in its force, and it makes it almost impossible to convict the man who sells narcotics to the addict, and if the addict is able to procure, as he usually can, an abnormal supply of opium or cocaine, or its derivatives, Congress will have to amend the Harrison Act, in order to protect the young and inexperienced, and the man who is likely to become an addict. It is said in the east that the Harrison law has not restricted the sale of opium and its products very materially, that the old addicts get the drug, and use it almost as freely as they did before the law was enacted. Addicts in Minnesota occasionally boast that they can get all the morphine they need, and the writer has no reason to doubt their statements. The law, however, has of course, been of tremendous benefit and has cut off a large number of beginners, and has, what is most gratifying, made physicians more careful about the prescribing and use of morphine, cocaine, and similar narcotics.

#### THE PURE FOOD LAW

The patent-medicine men are having a hard time. They have fought the Food and Drugs Act for years, and they have been able to dispose of their products in spite of their labels, and many fraudulent drugs have been sold at enormous profits, pending the final decision of the U. S. Supreme Court. This decision came out only a few days ago, and was written by Justice

Hughes. He swept away the insincere legal subtleties and cobwebs that the quacks depend upon to give them liberty and leeway in robbing the inexperienced.

The test case upon which Justice Hughes based his decision, was on a certain "sure preventive of pneumonia" and "positive cure for tuberculosis." As the *Minneapolis Journal* properly said in an editorial, "Everyone of understanding knows that there is no such medicine on earth." The lawyer for the patent medicine men contended that Congress could not know that the manufacturers of the dope did not believe that the preparation was really what it claimed, and that the law, by thus "entering the domain of speculation and by virtue of consequent uncertainty, operated as a deprivation of liberty and property without due process of law." Justice Hughes, however, held squarely that the intent to deceive may be inferred from the facts, that "a state of mind is itself a fact, and fraudulent representations may be made about it," thus cutting the ground out from under the legal spider-web spinners.

This decision is probably one of the best things that has been handed down for the benefit of the people in regard to patent and proprietary preparations, and will do a great deal toward putting the quack where he belongs, and eliminating his patent medicine from such active consumption. However, something else will spring up with a high-sounding name, with a formula published on the outside, not claiming perhaps to cure so many things, but suggesting that this remedy is good for such and such a disease, or has been used with success in certain diseased states. Then they proceed to advertise this fact very extensively, and it is very difficult to determine whether the drug is even what is claimed for it, whether the composition is true or uncertain. At all events, many of these patent compounds will be thrown out of the market, and the people will profit thereby.

#### MINNEAPOLIS AND ITS ICE SUPPLY

In a recent issue we commented on the filthy condition of one of the lakes from which Minneapolis gets ice; and we give herewith the comment by another on the same source of Minneapolis ice. Let it be noted that we refer to ice for our tables.

Dr. John H. Morse made the following statement at the annual meeting of the Hennepin County Medical Society:

Just as a matter of general information, I think this Society ought to know the condition of Cedar Lake.



I know of conditions here that probably the majority of these men do not know. The public bathe throughout the summer time in Cedar Lake, promiscuously; and during the past summer there have been two house-boats on the lake occupied by the dredge men and their families. Furthermore, the lake is supplied by surface water, and there is drainage from barns and cess-pools and other sources of filth around the shore, and the water has become solidified now and is being cut by the local ice companies and delivered to the sanitary refrigerators of the people of Minneapolis.

A member asked, apparently in astonishment, if Cedar Lake is within the city of Minneapolis.

Upon motion, the matter was referred to the Board of Health—for burial.

## CORRESPONDENCE

### PENSIONING PHYSICIANS

TO THE EDITOR:

An editorial in the *Minneapolis Tribune* of last Sunday regarding the financial outlook for doctors should stir the profession of this state to the importance of taking immediate steps to organize a pension fund for superannuated and disabled physicians. If the doctors of the state would read this article, I think they would be unanimous for the creation of a pension fund. The police, the ministers, and the public-school teachers have one. Why not the physicians who have labored for years to blot out their own income for the benefit of humanity? The medical societies of the large cities should take this matter in hand immediately, so that it could be got into proper shape to bring before the legislature next winter, when we could ask for one-twentieth of a mill, as did the teachers, and work our fund practically under the law they now have. I believe all well-to-do physicians and those who are not physicians, would contribute to such a fund.

If we can show the legislators that we have a substantial fund collected, I think they would help us as they did the teachers. Such a fund could retire physicians after twenty-five years' practice, should they so desire, on the payment of a fixed sum similar to the teachers' payment fund. By reading the "News Items" in THE JOURNAL-LANCET one can see that the frequent changes of location of physicians from one place to another means a poor living or none at all. As the public press has called our attention to our financial condition, it is time we move. Let us go to it.

W. F. MCCARTHY, M. D.

Delano, Minn., Jan. 22, 1916.

## REPORTS OF SOCIETIES

### MINNESOTA ACADEMY OF MEDICINE

The January meeting of the Academy was held on Jan. 5th with Vice-President Head in the chair.

Speaking of the sad circumstance of Dr. Dunning's death, which occurred since our last meeting, Dr. Head stated that a special committee to represent the Academy at the funeral services had been appointed by him immediately on learning of the president's death. Drs. Riggs, Dennis, Ritchie, Carlaw, and Weston were named. He also stated that in conference with the Secretary he had appointed Drs. Riggs, Dennis, and Leavitt on a committee to draft resolutions, and had asked Dr. Riggs further to give a memorial address at this the next regular meeting.

The following resolutions were read and adopted:

WHEREAS, It has been the misfortune of the Minnesota Academy of Medicine to lose by death its President and long-time member, Dr. Arthur W. Dunning, it becomes us as brother members to reflect on the many excellences of his character.

Dr. Dunning was a member of this society for sixteen years, during which time he served for ten years as secretary and treasurer, one year as vice-president, and a little more than two months as president.

Dr. Dunning was a man of unusual mental balance, acumen, and moral rectitude; his mind was broad, his motives unselfish, his impulses generous. Modesty, gentility, justice, and sympathy tempered his every act. His principles were adamant, but not militant; one knew he was good without being told. In his death the Academy of Medicine loses one of its most honored and respected members, therefore be it

*Resolved*, That we give expression of our love and esteem by transmitting to his bereaved family a suitably embossed copy of these resolutions; also that they be made a part of our official records.

C. EUGENE RIGGS,  
WARREN A. DENNIS,  
FREDERICK LEAVITT,  
Committee.

January 5, 1916.

Dr. Riggs' address followed. (The secretary is sorry not to have been able to take Dr. Riggs' remarks verbatim.) For a half hour he talked in a most dignified, impressive, and affectionate way of Dr. Dunning, showing many phases of his personality that only a few knew about.

Following Dr. Riggs' address, the matter of filling the office of president was taken up by the Society. Dr. Dunsmoor moved that the vice-president automatically be made president. Carried.

It was then moved that we proceed in the regular way to the election of a vice-president. Carried.

An informal ballot was taken, it being understood that the two members receiving the highest number of votes should be selected as candidates. The choice fell upon Drs. Dennis and Colvin, and the ballot that followed decided the election in favor of the latter. On motion of Dr. Dennis, Dr. Colvin's election as vice-president was made unanimous.

The matter of changing the date of meeting was again brought up. The constitution designates the first Wednesday of the month; but so many other meetings fall around this time of the month that quite a number think it would be desirable to have ours come later. To this end, Dr. Dunsmoor proposed that the constitution be amended to read as follows:

Article VI.—Regular meetings shall be held alternately in the cities of Minneapolis and St. Paul on the second Wednesday in each month, excepting in the months of June, July, and August; and the annual meeting shall occur on the first Wednesday in September.

The proposed change will be voted upon at the February meeting.

The only paper of the evening was presented by Dr. Dennis, the subject being "Some Observations on Gall-Bladder Disease." Afterward it was discussed by Drs. White, Mann, Head, and Sweetser.

Dr. Law contributed the following case:

I have to report a case and show a specimen of congenital pyloric stenosis. This case was referred to me by Dr. Schlutz, and had been under his observation for one month before I saw it.

The patient was a girl baby seven weeks old who weighed  $7\frac{1}{2}$  lbs. at birth and 5 lbs. when operated on by me. This child gave a history of having more or less vomiting from birth. At the end of two weeks, when she was brought to Dr. Schlutz, she had constant vomiting, and the cardinal symptoms of congenital pyloric stenosis, namely, projectile vomiting, obstinate constipation, loss of weight, and definite palpable stomach peristalsis from left to right. Dr. Schlutz treated this child for a month by gastric lavage and the various methods of feeding indicated.

The child at first gained in weight and then began to lose, and, when I was called, had complete obstruction at the pylorus and weighed but 5 lbs., this being  $2\frac{1}{2}$  lbs. less than the birth-weight. We did a rapid posterior gastro-enterostomy by the suture method. The child died ten hours later, however.

This specimen shows the definite, hard, firm tumor which completely occludes the pylorus. This tumor is approximately  $3\frac{1}{2}$  cm. long and 2 cm. in width. It is interesting to note the attitude of surgeons towards this condition of congenital pyloric stenosis. Surgeons are

not agreed among themselves as to the advisability of immediate operation in all cases. They are agreed, however, that there is approximately 50 per cent mortality rate following all types of surgical interference. The same high mortality is reported from medically treated hospital cases. Hutcherson reports 78 per cent mortality from medically treated cases in the hospital, yet out of 20 private patients treated medically, 17 recovered.

Our local pediatricians report over 83 per cent successfully treated medically. Again, from the surgical standpoint out of 21 cases operated on by Richter but 3 died, and out of 14 operated on by Scudder but 1 died, or but 4 deaths out of 30 cases operated on by these two men. Scudder affirms that if there is a palpable tumor in the pylorus, all cases should be operated on. Walton states the best indication for operation or not, is the weight of the child. The situation as understood by the medical and surgical men seems to have definitely crystallized now into the belief that nearly all cases are amenable to medical treatment if seen early by the pediatricians, and only those cases seen later by these gentlemen with a definite tumor and a progressive loss of weight are the ones that should be referred to surgeons. What the etiology of these tumors is, is not understood. Probably they have their start as a spasmodic condition of the pyloric muscle. Unless relieved by proper treatment, this condition goes on to hypertrophy and ultimate closure, which we have reason to believe is permanent. Both Walton and Murphy report finding the tumor persisting six months after gastro-enterostomy, when the children died from something else. Scudder, as well, noted permanent occlusion of the pylorus studied with bismuth and the x-ray, following operation.

When surgery is indicated the operation of choice is posterior gastro-enterostomy; pylorotomy and pyloric divulsion are taboo, the first because of 100 per cent mortality, the second because of recurrence. Pyloroplasty, while sometimes advocated, has a much higher mortality than gastro-enterostomy, and is not so certain.

Dr. Robertson, who had studied the case with Dr. Law, spoke further concerning the pathology and etiology of congenital pyloric spasm. Drs. Dennis and White also gave some of their personal observations on the subject.

There were 29 members present.

FRED E. LEAVITT, M. D.,  
Secretary.

#### HENNEPIN COUNTY SOCIETY

The annual meeting of the Society was held on January 3d. The names of the officers elected have already been published in THE JOURNAL-LANCET.

The Milk Commission made an elaborate report, showing that its members had done splendid work, inspecting dairies and maintaining the standard of the inspected milk supply furnished by dairies under contract with the Society.

Three deaths occurred in the membership in 1915: Drs. Cates, Coria, and Stuart.

The Library Committee reported the number of books in the library to be 5,385; of reprints, reports, etc., 1,237; books and journals loaned, 723. The number of readers was 1,018. Forty journals are subscribed for, and 114 were donated.

The Treasurer reported receipts of \$3,679, and disbursements of \$3,185.

A Red Cross Committee was appointed to supervise efforts made by the Society for aid to sufferers from the European war.

The Society considered the matter of dealing with physicians' bills against a certain class of delinquents who never intend to pay.

The matter of a new building for the exclusive use of physicians and dentists was given consideration. It is believed that some real estate man or company will soon offer to erect a building of this kind.

President Farr's annual address contained a number of important recommendations. We shall soon publish this address, and may make some comments on one of his recommendations.

#### THE GOODHUE COUNTY SOCIETY

The annual meeting of this Society was held in the new Commercial Club rooms in Red Wing on January 4th.

At a short business session the following officers were elected for 1916: President, Dr. M. W. Smith, Red Wing; vice-president, Dr. C. E. Gates, Goodhue; secretary-treasurer, Dr. H. T. McGuigan, Red Wing; censor for three years, Dr. C. A. Fjelstad, Red Wing; censor for unexpired term of Dr. Smith, Dr. J. A. Gates, Kenyon; delegate, Dr. H. E. Conley, Cannon Falls; alternate, Dr. A. T. Conley, Cannon Falls.

Dr. Alva Conley, of Cannon Falls, was elected a member.

At this session, a resolution was passed authorizing the president to appoint a committee for the purpose of instituting an educational campaign for the prevention of communicable diseases and improvement of community hygiene in the city of Red Wing and throughout the county. Dr. L. E. Claydon and Dr. M. W. Smith, Red Wing, Dr. J. A. Gates, Kenyon, and Dr. A. T. Conley, Cannon Falls, were appointed. The first meeting will be held at the Commercial Club rooms at Red Wing on Tuesday evening, February 1st.

Lunch was served at the St. James Hotel at one o'clock.

The afternoon meeting opened at 2 p. m. with a paper by Dr. W. E. Sistrunk of the Mayo Clinic

upon "Treatment of Acute Appendicitis." The paper was well and favorably received by all members of the Society, as was indicated by the discussion, which was led by Dr. A. T. Conley, of Cannon Falls. Dr. M. W. Smith, of Red Wing, gave an interesting talk on Mineral Springs Sanatorium. The doctor made a plea for the co-operation of the doctors throughout the county in helping the good work that is being done at the Sanatorium. This paper was also thoroughly discussed by all members present, who seemed very much in favor of the Sanatorium idea as a prevention and cure for tuberculosis.

The last paper, by Dr. E. S. Muir, of Winona, was very interesting and heartily enjoyed by all members present. The doctor's paper was upon "Blood-Vessels." He gave the same demonstration of his bone-plate anastomosis of arteries that he gave before the Navy Department at Washington, D. C., a few months ago. This idea of blood-vessel anastomosis is entirely original with Dr. Muir, and he deserves great credit for the manner in which he has worked it out.

H. T. MCGUIGAN, M. D.,  
Secretary.

#### THE DEVILS LAKE DISTRICT ASSOCIATION OF NORTH DAKOTA

The annual meeting of the Association was held at Devils Lake on January 11th. The entertainment of the State Association, which holds its annual meeting in Devils Lake in May, was considered at length. Officers of the Association for 1916 were elected as follows: President, Dr. C. J. McIntosh; vice-president, Dr. J. A. Carter; secretary-treasurer, Dr. G. F. Drew; censor, Dr. C. Smith.

### NEWS ITEMS

Dr. J. C. Speck, of Proctor, has moved to Chicago.

Dr. Sig. Engh, of Minneapolis, has located in Aneta, N. D.

Dr. R. D. Carmen, of Rochester, has departed for Kansas City, Mo.

Dr. John W. Towey, formerly of Minneapolis, has moved to Langdon, N. D.

Dr. Tord Neilson, formerly of Fergus Falls, has located at DeLamere, N. D.

Dr. E. A. Pray, of Valley City, N. D., is to take postgraduate work in New York.



Dr. H. T. Ground, of the State Hospital at St. Peter, has moved to Virginia.

Dr. O. M. Haugan, of Fergus Falls, has completed a postgraduate course in Chicago.

Drs. R. H. Devine and N. J. Shields, of Wahpeton, N. D., have dissolved their partnership.

Dr. A. J. McCannel, of Minot, N. D., is taking a three months' postgraduate course at New Orleans.

Dr. J. A. Gates, of Kenyon, has filed as a republican candidate for lieutenant-governor of Minnesota.

Miss Enid Allen, a graduate of Mt. Holyoke, is to have charge of the Maternity Hospital of Minneapolis.

The partnership existing for some years between Drs. James and Benham, of Mankato, has been dissolved.

Dr. J. W. Jesion, of St. Paul, has been appointed local surgeon of the Northern Pacific Beneficial Association.

Dr. C. F. Carstens, formerly of Keewatin, but for the last year a resident of Baltimore, has returned to Hibbing.

The Cascade Sanitarium and Medical Hospital, under the charge of Dr. J. E. Crewe, at Rochester, opened last week.

Dr. I. S. Benson, of Willmar, has severed his connections with the Willmar Hospital and will practice by himself hereafter.

Dr. L. B. Dochterman, of Williston, N. D., is devoting a month's time to special work in the New York Post-Graduate Medical School and Hospital.

Dr. G. F. Brooks, of Hibbing, is taking postgraduate work at the New Orleans Polyclinic of the Graduate School of Medicine of Tulane University of Louisiana.

The Minneapolis physicians are collecting surgical instruments for the French hospitals. Any physician interested can get information from the Hennepin County Medical Society.

Dr. W. E. Daniels, of Madison, S. D., has been appointed as the delegate of his state for the meeting of the National Sanitary Board to be held February 2d in Salt Lake City.

Dr. R. W. Furman, recently of Richardton, N. D., has completed a postgraduate course in Harvard, and has joined the firm of Drs. Stomberg & McQueen in Langdon, N. D.

The Children's Home Society of St. Anthony Park, St. Paul, established a training-school for

baby nurses a year ago, and graduated its first class last week, giving diplomas to eight young women.

Dr. J. G. Erickson was elected chief-of-staff at the recent annual meeting of the Swedish Hospital of Minneapolis. Drs. J. P. Sedgwick, F. C. Rodda, J. P. Schneider, and R. T. Vake were added to the staff.

Spring Grove is to have a hospital. Nearly \$6,000 has been subscribed for stock, and a permanent organization has been formed. Drs. G. M. Helland and M. S. Nelson, of Spring Grove, are active in the work.

Dr. John M. Robinson, of Duluth, who was recently married to Miss Francis M. Root, of Thomaston, Conn., has gone with his bride to London, where they expect to spend several months in work in the relief hospitals.

Dr. H. G. Irvine, of the Department of Dermatology and Syphilis of the State University, attended the annual meeting of the Chicago Dermatological Society, of which he is a member. Dermatologists from St. Louis, Louisville, Cleveland, Detroit, Ann Arbor, Cincinnati, Milwaukee, and Toledo, were present at this meeting.

The Blue Earth County Society of Minnesota held its annual meeting at Mankato on December 27th. At this session the officers for 1916 were elected as follows: President, Dr. A. F. Kemp; vice-president, Dr. J. E. Merrill; secretary-treasurer, Dr. A. J. Wentworth; board of censors, Drs. R. N. Andrews, A. G. Liedloff, and J. H. James; delegate, Dr. J. W. Andrews; alternate-delegate, Dr. J. S. Holbrook.

Of the communities with over 3,000 population in Minnesota the five selling the most Red Cross Seals per capita, were offered each a visiting nurse for one month free of all charges. Worthington led the list, with ten seals per capita; River Falls followed with six; and Bemidji came next with five. Brainerd, Lake City, Fergus Falls, Fairmont, Willmar, Warren, Wabasha, and Montevideo are so close together that it has not been decided which town leads.

Dr. Carroll Fox, of the U. S. Public Health Service, made a survey last fall of public-health administration and organization in North Dakota. His report, though not sensational, will arouse the next legislature of the state to action, which the physicians of the state have been unable to do. He pointed out the lack of co-ordination between the different bodies doing public-health work because of a lack of funds and

proper legislation. He said that there are "5,000 cases of tuberculosis in the state, one-half of which are open cases and a menace to the community."

Dr. C. S. Stanley, of Minneapolis, has just returned from France, where he has spent six months in a British hospital near the trenches. Dr. Stanley went to Europe with a Chicago "unit," composed of 23 physicians and 75 nurses. The hospital in which Dr. Stanley worked received about fifteen hundred patients, sick or wounded, a week, among whom there were practically no cases of typhoid and only an occasional case of pneumonia. He reports that it is now very difficult for medical men to get appointments of this character; and little or nothing is paid for such service.

The American Orthopedic Association announces the appointment of Dr. Mark H. Rogers, Boston, as Editor of *The American Journal of Orthopedic Surgery*, the only periodical in the English language devoted to orthopedics. This journal, which has now completed thirteen volumes as a quarterly publication, will henceforth be issued monthly, the first number in the new form being that of January, 1916. The office of publication has been transferred from Philadelphia to Ernest Gregory, 126 Massachusetts Ave., Boston. The subscription price is \$4.00 per year.

#### PHYSICIANS LICENSED (JAN. 7, 1916) TO PRACTICE IN NORTH DAKOTA

Ten candidates took the entire examination; five were successful. Thirteen applied for a license through reciprocity; two failed at the practical and oral examination. Two were granted license without further examination.

The following were granted license after taking the entire examination:

Everett E. Greene, U. Minnesota, 1915.  
John W. Towey, Northwestern, 1915.  
Hans Bakke, Marquette, 1915.  
Herman R. Gundermann, St. Louis, 1887.  
Geo. V. Jamieson, Rush, 1913.

The following took practical and oral examination, required of those seeking licenses by reciprocity:

Svere Oftedal, Illinois.  
Geo. D. Crosette, Minnesota.  
J. C. Jackman, Illinois.  
R. H. Reimche, Illinois.  
Hugo Branyan, Illinois.  
Henry E. Dahleen, Minnesota.  
Hugo Mella, Georgia.  
John S. Whitson, Indiana.

T. Herbert Lewis, Illinois.  
Thos. J. Glasscock, Louisiana.  
Mila H. Culbert, Illinois.  
Thos. A. Peppard, Minnesota.  
Axel Oftedal, Minnesota.

G. M. WILLIAMSON, M. D.,  
Secretary.

#### ASSISTANT WANTED

I desire an assistant in my eye, ear, nose, and throat practice. A good proposition for the right party. Address 295, care of this office.

#### POSITION WANTED

A graduate nurse with previous experience desires a position in a physician's office. Can furnish good references. Address 300, care of this office.

#### LOCUM TENENS WANTED

A Scandinavian physician and surgeon, must be able to do abdominal surgery; only a very able man wanted. Give full particulars in first letter. Address 299, care of this office.

#### LOCUM TENENS WANTED

I desire some one to take my place for a few weeks with the prospect of a permanent place. Have R. R. contract and am superintendent of County Board of Health. Address 301, care of this office.

#### EXCHANGE—LAND FOR AUTOMOBILE

I have 120 acres of choice hardwood timber land in southern Cass County, Minnesota, on a state road and near beautiful lakes to exchange for first-class five-passenger car of late model. Value of land \$16 per acre; mortgaged for \$750 at 7%. Mortgage held by bank. Address G. M. Sewall, M. D., Cuyuna, Minn.

#### WANTED, LOCUM TENENCY

Beginning March 1st, for any length of time not to exceed six months, by regular physician, thirty-two years of age, 1914 graduate; completed an eighteen-months' internship at a large county hospital Dec. 10th. Can give best of reference. Am doing locum tenency work now. Prefer a small town with little or no competition. Address 298, care of this office.

#### FOR SALE

South Dakota practice of \$3,000 to \$3,500 yearly, in best section (southeastern) of state. Town 500, excellent business establishments, school, churches, electric lights, etc. Farmers prosperous; collections always good, one competitor; outside competition 22-18-14-12 miles. Good roads. Price, \$500.00 cash, includes drugs, considerable equipment and practice. Immediate possession. Address 302, care of this office.

#### DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

# THE ABDOMINAL BRAIN CAN'T THINK

but it does act to induce or aggravate

## Obstipation---Stasis---Autotoxemia

which is more than "constipation".

Treatment to be efficient includes lubrication.

Effective lubrication requires INTEROL.

INTEROL has been hyper-refined, *i. e.*, it is safe, is of correct body and effective viscosity, is free from suggestion of flavor or odor (even when heated to 100° C.).

Therefore:

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KNOW HOW—AND WHEN—TO USE INTEROL

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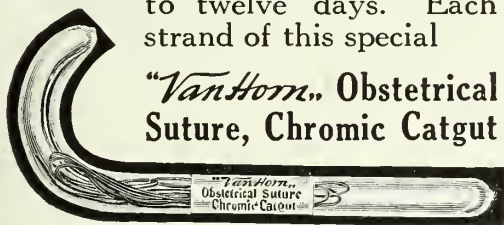
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is threaded on a suitable needle, ready for instant use. Indispensable for your surgical bag. One tube in each box. Price, 25 cents each; \$3.00 per dozen tubes. No samples.

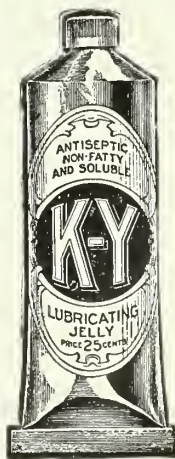
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It is freely and wholly soluble in **ICE-COLD WATER**

It is primarily an **ELIMINANT**

It is **NOT** a *harsh* hydragog but

It is a *decided* corrective in **OBSTINATE CONSTIPATION**

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Ac. Tartar	Saccharin (1-80 gr. per dram)	

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If you have a case of **ACUTE INFECTION** give it an injection of **VACCINE** in some healthy tissue which will be stimulated without deleterious results to antibody production.

We have had extensive experience with severe cases and may be of service to you.

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We send gratis, upon request, sterile containers and complete instructions, for the collection of all specimens, such as urine, blood, tissue, stomach contents, smears, culture media for autogenous vaccines, etc.

Reports from this laboratory are **ACCURATE, RELIABLE** and **DEPENDABLE**.

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**Tissue Examination for Diagnosis . . . \$5.00**

Very dependable and complete reports.  
Slides of section sent upon request.

**Wassermann Test . . \$5.00**

We do the classical test. Any of the various modifications made upon request without charge.

**Complement Fixation Test for Gonorrhea . . \$5.00**

We use a polyvalent antigen.

**Autogenous Vaccines . \$5.00**

with the *exciting organism* isolated and identified. Cultured *aerobically* and *anaerobically*. Put up in ampules, in graduated doses, or in a single 20 c.c. container.

## National Pathological Laboratory, Inc.

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## PUBLISHER'S DEPARTMENT

### A SANITARY CLOSET THAT IS A SUCCESS

The Sisters' School at Madison, Minn., has ordered installed in their building a six-bowl Auto-Chem-Clo system of sanitary closets, which are manufactured by the Automatic Chemical Closet Company of Minneapolis.

### THE WORK OF THE SWEDISH HOSPITAL OF MINNEAPOLIS IN 1915

This hospital received 3,993 patients in 1915, which is an increase of 829 over the number received in 1914.

The number of surgical operations performed during the year was 3,248, with a mortality-rate of less than 3 per cent. Such facts show the work done by our great hospitals, and also show the character of the work.

### KELLER'S TUBERCULIN PLATES

Dr. A. H. Keller, of Sioux Falls, S. D., has devised an easy method of making the tuberculin test for tuberculosis, using a small plate properly treated. Dr. Keller offers nothing new or startling. It is just the method, and it is so simple that it is a real comfort to both the patient and the physician. He will send literature to anyone interested.

### THE CHICAGO LABORATORY

Drs. Webster, Dagg, and Croy, directors, respectively, of the Departments of Chemistry, Pathology, and Bacteriology of the Chicago Laboratory believe they are offering the medical profession an unexcelled opportunity to have their laboratory work done in an expeditious and scientific manner. Their announcement appears on our first cover page in the first issue of every month, and gives the prices for a number of the ordinary routine tests now required by all physicians who practice modern medicine.

### SALINOS

Salinos is an effervescent saline cathartic that is readily soluble in cold water, and is rarely rejected by the most sensitive stomach. Its manufacturers make no extravagant claims for it, and give its contents on their literature.

It is simply a fine blending of well-known ingredients, put up in unlettered bottles to meet the needs of the medical profession and their patients.

The Salinos Company, Minneapolis, will be glad to send samples to any physician upon request.

### HOPE SANITARIUM

In the beautiful little city of Hastings, Minnesota, only a few miles from the Twin Cities, is located Hope Sanitarium, a home-like institution, its main building having formerly been a residence. Here the invalid can find rest and peace of mind, and have the aid of all the modern appliances, such as electric-light cabinets, steam and vapor cabinets, electric currents, hydrotherapy, massage, etc., with medical attendance; and all at very moderate prices.

Dr. Phil. J. Brady is the medical director, and will furnish any information desired.

### A CATALOGUE OF BOOKS

The W. B. Saunders Company, of Philadelphia, has issued their 1916 eighty-four page illustrated catalogue. As great care has evidently been taken in its production as in the manufacture of their books. It is a descriptive catalogue in the truest sense, telling you just what you will find in their books and showing you by specimen cuts, the type of illustrations used. It is really an index to modern medical literature, describing some 300 titles, including 45 new books and new editions not in former issues.

A postal sent to W. B. Saunders Company, Philadelphia, will bring you a copy—and you should have one.

### THE JORDAN SULPHUR SPRINGS

If people who are just "run down," nervously exhausted, feeling "grippy," or just getting over the grip, would ask the consent of their doctors, or, better, given the advice of their doctors, to go for even a week to the Jordan Sulphur Springs, and there take the mud baths, there would be a marvelous change in practically all such people.

The mud bath and rest rejuvenate most people, and do it so quickly that one seems unable to understand why. It is rest and warmth and freedom from care, and possibly something else, but that is not important.

And the cost of it is within the means of almost everybody.

### THE INTRAVENOUS PRODUCTS

As the name implies, these products are designed for direct medication by means of the blood. They are sterile solutions of well-known products, and are easily administered; and it is claimed that the results obtained from their use are highly gratifying. They are strictly ethical, and are distributed in the Northwest by Messrs. Noyes Bros. & Cutler.

On another page will be found the announcement of the Company, and an illustration of the method of administration of the solutions.

The Company or Messrs. Noyes Bros. & Cutler will send any one who applies for it, their 64-page booklet on Intravenous Products.

### WHO IS RESPONSIBLE?

Illinois has had a great flood, and the press reports tell us that an epidemic of typhoid is feared. Thus to heap sickness and death, with their suffering and sorrow, upon the desolation and financial loss already sustained, seems too cold and cruel a fate for human beings to endure. Yet, such are the facts, deplorable as they are.

Typhoid fever is a disease that can be spread only through careless and indifferent methods of sewage-disposal by one individual taking into his system, commonly with food or drink, the bowel or bladder discharges from another who has typhoid fever, or who is a "carrier" of the typhoid bacillus; and the disease is, therefore, *preventable*. Should not responsibility for this wholesale carnage, this hideous infraction of all laws of society and decency, be positively fixed, the same as are now lesser crimes and misdemeanors?

As we look to the church for guidance as to limitations and privileges in a moral sense, so should we look to the medical men for a standard in sanitation and

hygiene. Still, who will say that actual conditions warrant the following of examples set?

The biggest crime is chargeable against the institution that operates for profit, and does not provide for a safe method of sewage-disposal. What possible opportunity, for instance, can the individual who realizes the danger have for bettering the conditions as long as the hospital in the community pumps its sewage from a reservoir out upon the open ground? What chance has the public-spirited person where the doctor himself practices these abuses against sanitation?

The community that is safe from floods now, will not be safe from the flood that comes in fly-time.

#### HORLICK'S MALTED MILK

Appreciating the importance of the purity of foods, especially for infants and invalids, the most improved dairying methods have for many years been maintained in the herds which supply the milk for that world-wide product, Horlick's Malted Milk. Care is taken to exclude unhealthy animals, to see that feed and drinking water are pure, and to regulate in a hygienic manner the light, air, and ventilation of the barns, and the cleanliness of the cows.

The same care caused the firm to erect and maintain their own malt houses, in order to insure excellence in the malted grain. In the entire process of the manufacture, scientific apparatus, evolved as the result of a third of a century's experience, enables them to pre-

sent in the finished product a food which is nutritious in the highest degree, and well-proportioned in its ingredients, and so easily digested and assimilated as to be gratefully received by the weakest stomach. Many difficulties in the feeding of infants are thus avoided, e. g., the anxiety which is naturally felt when traveling with infants or invalids as to the quality of the milk available.

Horlick's Malted Milk Company are always pleased to send samples of the original Malted Milk upon application.

#### MOUTH-INFECTIONS

The best physicians in America are giving a great deal of attention to mouth-infections, from which a great train of diseases spring. The correction of such diseases is exceedingly difficult when once they have become firmly seated.

The prevention of such conditions should be given more attention by medical men, and preventive measures should be begun very early in life. Messrs. Eli Lilly & Company offer the profession their Secrestra Tablets of Ipecac for the treatment of the secondary condition of such infection, which the physician is called upon almost daily to combat.

No pharmaceutical house in America turns out a higher grade of products than this company, and their label is a guarantee of the standard of every product upon which it is found.

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consists of thousands of patients who have enjoyed the remarkably beneficial results from a therapeutic regimen including the daily use of PLUTO WATER.

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Made from pure Norwegian cod-liver oil emulsified after a scientific formula by approved processes.



The need of many children for cod-liver oil has been met with marked success by Hydroleine. They take it willingly; they—as well as adults—like its distinctive nutty flavor. Hydroleine is also exceptionally digestible. While its scope of usefulness is widened by its palatability and digestibility, it is always notably dependable.

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BOSTON  
JAN 28 1917

# THE JOURNAL- LANCET

The Journal of the Minnesota State Medical Association  
and Official Organ of the  
North Dakota and South Dakota State Medical Associations

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MINNEAPOLIS, FEBRUARY 15, 1916

No. 4

## LAMINECTOMY UNDER LOCAL, NOT SPINAL ANESTHESIA\*

By A. C. STRACHAUER, M. D.

Surgeon, Northwestern Hospital, and Associate Surgeon, University Hospital  
MINNEAPOLIS

The following laminectomies constitute the first performed in this country under local anesthesia, according to the writer's information. They are reported to demonstrate the possibilities of this method.

For some time the technic for the entire field of minor surgery has been achieved, and there is being added a constantly increasing number of major conditions. The great majority of surgical operations can now be performed, and in some clinics are daily being performed, under perfect and absolute local anesthesia. This, however, is not the all-important consideration. The *essential* question is not, what operations *can* be done under local anesthesia, but what operations can *thus* be done to the *best* advantage of the patient. The case at hand must be decided for itself, as an individual, and not as one of a class.

Local anesthesia in major surgery is not the anesthesia of choice, but of necessity. Its indications are the contra-indications to general anesthesia—namely, diabetes, shock, anemia, arteriosclerosis, aortic aneurysm, sepsis, toxemia, general enfeeblement, and the cardiac, hepatic, renal, and pulmonary lesions (tuberculosis, bronchitis, lung abscess, etc.). Borderline cases may also be included, becoming safe risks under local anesthesia.

The writer's personal list of operations performed under local anesthesia includes: trephining of the skull, extensive laminectomies for

spinal-cord tumors, major amputations of both upper and lower extremities (one double amputation of legs below the knees), arthrotomies, the resection of joints, and various other bone-operations (including a five-rib Schede and pulmonary decortication for a long-standing case of empyema, urinary cystotomies, prostatectomies, herniotomies, laparotomies (hysterectomy, resection of the bowel, gall-bladder, appendix, and stones in common duct), colostomies, thyroid surgery, the removal of hemorrhoids, large surface tumors, breasts, and a considerable quantity of minor work, namely, castrations, epididymectomies, removal of sac in hydrocele, ligation and removal of veins in varicocele, tracheotomy, circumcisions, amputation of digits, radical operation for ingrowing toenail, skin-grafting.

In addition to the use of local anesthesia upon absolute indication, its employment possesses certain advantages over general anesthesia. Pre-operative starvation is unnecessary. Patients well fed before operation have an increased resistance to surgical interference. Post-operative nausea and vomiting, with its attending coughing and straining, are absent. This means fewer post-operative and recurrent hernias. Full diet may be immediately permitted. This lack of interruption of nutrition is at times of great importance in weakened, exhausted, and, particularly, elderly individuals. Likewise the early ingestion of water in large quantities is advantageous, especially in the toxemias, to flush out the blood and kidneys.

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.



The afore-mentioned cases are cited as illustrations of the class of patients in which the employment of local anesthesia is advantageous.

Traumatic surgery, including naval and military surgery, is particularly suitable for local anesthesia,—not alone the minor work, as a matter of convenience, but the major cases, such as an intracranial hemorrhage, fracture of the spine, or other imperative conditions complicated by additional body injuries, for example, a crushed thorax, making inhalation anesthesia extra-hazardous. The writer has seen cases in shock from a crushed extremity promptly improve upon blocking the nerves, the patients being in far better condition following the amputation than before operation. A full stomach may swing the balance in favor of local anesthesia.

Every major amputation, even though performed under general anesthesia, should have the main nerves blocked to reduce, or to prevent, shock. This is particularly true in cases already shocked, as in railroad and machine crushing injuries. *Many of the clinical cases of so-called shock are in reality cases of hemorrhage.* In an ordinary, general surgical practice shock is of very rare occurrence, and, barring traumatic cases, practically unseen. However, true shock of the nervous system does occur, and more attention and effort will be, and is being, paid to its abolition. Crile is undoubtedly an extremist,—he has to be,—but there is much of truth and benefit in his teachings. Be that as it may, the man who would practice anoci-association in any of its forms, must first be thoroughly conversant with the technic of local anesthesia.

The absence of shock after operations under local anesthesia is impressive, particularly after heavy surgery, in which the insult inflicted has been great, as in double amputation of the legs, laminectomies, and a five-rib Schedé with pulmonary decortication. Some of these patients sat up in bed immediately after their return from the operating-room, and had full-diet meals.

It has been the writer's experience that many patients dread the loss of consciousness more than the operation. Those having experience with both methods are invariably loud in expressing their preference for local anesthesia. Numerous individuals prefer the inconvenience of surgical conditions rather than submit to operations under general anesthesia, but seek operation when they learn that such can be performed under local anesthesia. This seems to be particularly true of hernias.

The important question in local anesthesia is not, *what* drug are you using, but *where* and *how* are you injecting it. This statement excepts cocaine, which is a dangerous drug and should be used only topically upon mucous membranes. There are at our command, a large number of satisfactory local anesthetic drugs of extremely low toxicity, making the hypodermic injection of cocaine practically criminal. The writer prefers and employs novocain in isotonic saline. Freshly distilled water should be employed in its preparation. Suprarenalin is added to constrict the capillaries, thereby retarding the absorption and lengthening the duration of the anesthesia. One drop of a solution of one to one thousand is added to every 10 c.c. of novocain solution. Two hundred and fifty c.c. of a half per cent solution of novocain with suprarenalin may be safely injected, and is sufficient for any operation. The writer has never found it necessary to employ 200 c.c. Novocain is seven or eight times less toxic than cocaine; however, even this toxicity must be remembered. Strong solutions should only be used by the experienced. Corbett has shown experimentally that novocain thrown directly into the blood-stream, may be hazardous. The practical deduction from this is, that in making the injection the hypodermic needle must be kept continuously advancing, or, in the endoneural blocking of a large nerve-trunk, the needle should be introduced to the site of injection unattached to the syringe, so that, if the point should happen to be within the lumen of a blood-vessel, the blood would flow back through the needle, and so give warning.

Synthetic suprarenalin is preferable to the animal extract of adrenalin, since it is chemically pure, more stable, and does not deteriorate upon boiling. Adrenalin is very sensitive to light and exposure. Its decomposition products are as toxic as ptomaines. On exposure to the air, adrenalin becomes oxidized, turning pink and brown. Alkalies and iron likewise alter its composition, making it necessary thoroughly to rinse all hypodermic needles, syringes, beakers, and instruments, if they have been boiled in soda, and to discard all rusted needles. Only absolutely fresh, colorless solutions may be used. The writer prepares his solutions personally after the patient is in the operating-room. Unless the operator is able and willing to give scrupulous attention to these details, he had better employ quinine and urea hydrochloride, which is absolutely non-toxic, practically fool-proof, and, in



the hands of Hertzler and others, is considered very satisfactory for all forms of local anesthesia.

REPORT OF LAMINECTOMIES, WITH CASE ABSTRACTS OF SPINAL CORD TUMORS

CASE 1.—University Hospital, No. 3,935. Patient, female, aged 27; admitted to the neurologic service with

*Operation.*—Due to the extreme enfeeblement, emaciation, and advanced degree of exhaustion, and the presence of albumin and casts in large quantities in the urine, the laminectomy was performed under local anesthesia. The spinous processes of the fourth, fifth, sixth, and seventh thoracic vertebrae and the posterior arches of the fifth, sixth, and seventh vertebrae, were

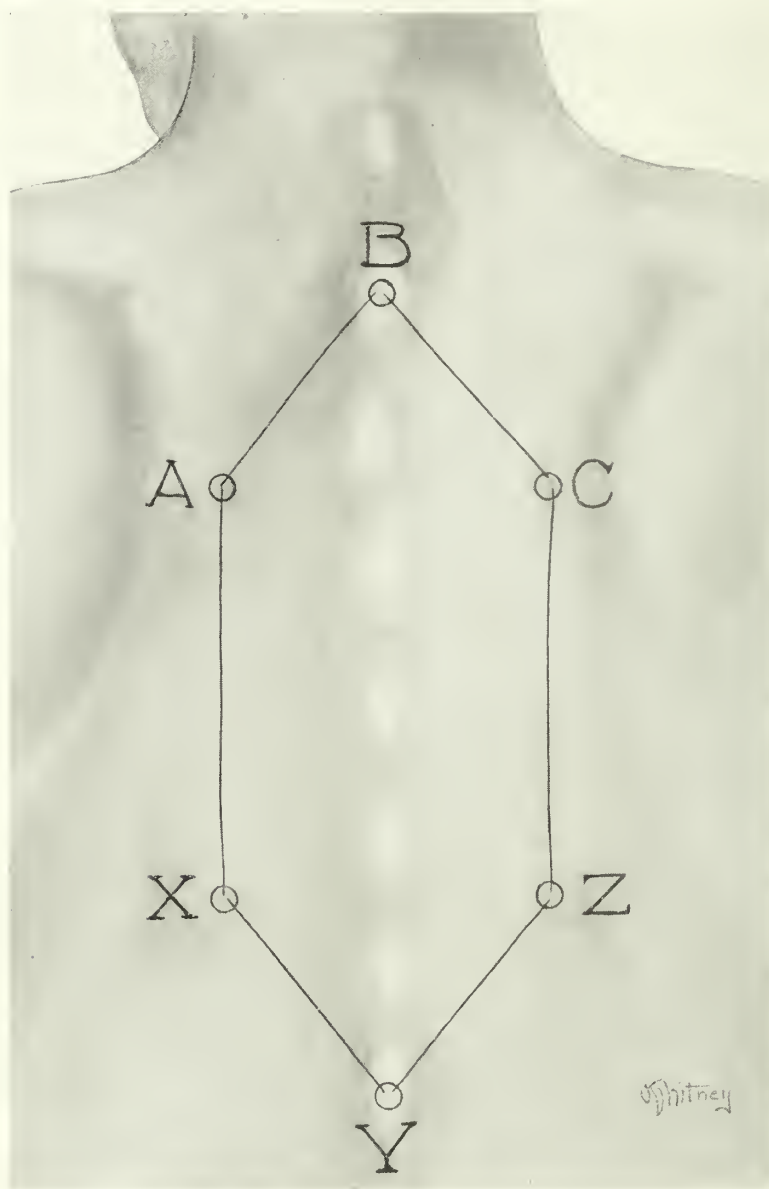


Fig. 2. Field of operation for laminectomy. See text for technic of injection for local anesthesia.

a spastic paraplegia below the waistline, loss of control of bladder and bowel, and large multiple bed-sores. X-ray, negative; blood and spinal fluid Wassermanns, negative. A diagnosis of tumor of the spinal cord or meninges at the level of the sixth thoracic vertebra was made by Dr. A. S. Hamilton, Chief of the Neurologic Clinic,

removed. A dark-red, tumor-like mass was exposed beneath the dura and outside of the cord, lying on the posterior surface and left side of the cord. The growth was removed, and on microscopic examination proved to be localized hypertrophic pachymeningitis. (Dr. W. C. Johnson, University Hospital Pathologist.)

CASE 2.—University Hospital, No. 3,897. Patient,

male, aged 24; admitted to the neurologic service. Paralysis below the waistline, loss of control of the rectum and bladder; multiple bed-sores. X-ray, negative; blood and spinal fluid Wassermanns, negative. A clinical diagnosis of tumor of the spinal cord or meninges at level of third thoracic vertebra was made by Dr. A. S. Hamilton.

circumscribed tumor extending from the third to the fifth segments. The tumor mass was under considerable pressure, bulging up as the vertebral arches were removed with forceps. The mass was removed. Microscopic study of tissue by Dr. Johnson showed a small round-celled sarcoma.



Fig. 3. Case No. 2. Small round-cell sarcoma removed by laminectomy under local anesthesia.

*Operation.*—A laminectomy was performed under local anesthesia, pyelonephritis, albumin, casts, and pus in the urine, and myocarditis with displacement of the heart into the right thorax, being present. The patient was likewise extremely emaciated and enfeebled. The second, third, fourth, and fifth posterior vertebral arches were removed, exposing a dark-blue, soft, cir-

#### TECHNIC OF LOCAL ANESTHESIA FOR LAMINECTOMY—ANATOMICAL CONSIDERATIONS

The anterior and posterior roots of the spinal nerves join within the intervertebral foramina. Shortly after the so-formed spinal nerves emerge

from the foramina, they send off connecting branches (the rami communicantes) to the sympathetic system, and then divide into anterior and posterior primary branches. The anterior branches form the intercostal and abdominal nerves; the posterior branches supply the longitudinal muscles and fascia of the back and the periosteum of the vertebrae, and innervate the skin to the right and left of the median line. It is this latter, or posterior, branch which is blocked to obtain local anesthesia for laminectomy. (See Fig. 1.) By injecting an anesthetic fluid directly into the trunk or immediate neighborhood of this posterior branch, its line is temporarily put out of commission; and painful sensations or stimuli cannot be sent to headquarters, and so sensed as pain. In other words, local anesthesia obtains.

*Technic of injection.*—Outline an ample field of operation by the formation of endermic wheals at convenient points, as ABCXYZ, forming a hexagon. (See Fig. 2.) The endermic wheal is formed by the injection of 0.5 per cent novocain, through a very fine hypodermic needle, directly into the skin, forming a blanched, button-like elevation, which is rendered immediately anesthetic, thus making painless all further injections and manipulations through the skin. Introduce a long hypodermic needle through these wheals, and connect the points ABCXYZ by subcutaneous injection of 0.5 per cent novocain, so forming a fence of the anesthetic fluid around the operative field. Palpate the interval between the transverse processes. Through this intertransverse space, and at a point about one and a quarter inches laterally from the tip of the spinous process, introduce the needle directly inward to the depth of one and a quarter or one and a half inches until the bony obstruction of the transverse process is felt. The needle is now carried past the upper border of the transverse process, and 5 c.c. of a 1 per cent solution of novocain

deposited. The posterior branch of the spinal nerve is thus blocked by endoneural or perineural injection. This paravertebral blocking is carried out bilaterally for all of the posterior branches of the spinal nerves in the field. Wait ten minutes for complete, perfect anesthesia to obtain before beginning the laminectomy.

#### CONCLUSIONS

The afore-mentioned laminectomies were performed successfully, absolutely painlessly, and free from shock or by-effects. The operations were practically bloodless, which in this class of work is of the greatest advantage. The writer was so impressed by the angiospastic effect of the suprarenalin that he would advise the injection of an adrenalin solution even when the laminectomy is to be performed under general anesthesia. Krause, Horsley, Cushing, Elsberg, and other neurologic surgeons all comment on the profuseness of hemorrhage in laminectomies, which is frequently so great as to necessitate the abandonment of the operation, or its performance in two stages. Shock and hemorrhage are the causes of death in laminectomy, and both factors are reduced to a minimum by the plan of operation, as outlined.

Local anesthesia is not to be employed promiscuously. Scrupulous attention to details in both the preparation and the employment of anesthetic solutions, is essential to success and to the avoidance of disaster. The operator using local anesthesia must be qualified to know its technic, indications, and limitations, in this regard sharing the technical experience of surgery in general.

The writer prefers general anesthesia in major surgery, but believes that there is a large field in which local anesthesia is infinitely superior, and is indicated.

[For discussion, see page 101.]

## LOCAL ANESTHESIA\*

By L. E. DAUGHERTY, M. D.

ST. PAUL

The use of local anesthesia in this country has not kept pace with its use abroad. In the Heidelberg Clinic, known for its large proportion of laparotomies, in the year of 1912 54 per cent of all operations were done under local anesthesia.

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.

In the hospital at Zwickau (Braun), 48 per cent of the operations were done in this manner; in the hospital at Stettin (Hesse), 66.07 per cent; and it is probable that in other clinics abroad the proportion was the same or larger. The explanation of the non-use of local anesthesia in this country lies in the fact that the technic is not



properly understood, and the toxic cases of cocaine poisoning resulting in sudden death are still remotely associated in the minds of many with local anesthesia.

In the combination of novocain and adrenalin as used by Braum, we have by far the best local anesthetic so far discovered, and the dangers resulting from its use are very small. A careful search of medical literature has failed to disclose a proven fatal case following its use. Moeller has described a death which was supposed to be due to the toxic effect of novocain, but Fisher believed that this death was due to acute sepsis. Schwarz reported, in 1907, that albuminuria not infrequently followed injections of novocain. Morian noted that irritation of the kidneys followed the use of novocain in from 5 to 10 per cent of the cases injected. The amount of urine secreted did not seem to be affected, nor was the albuminuria dependent on the amount used or the site of the injection. He also stated that practically all cases vomited. The blood-pressure was not affected. In a recent editorial in *THE JOURNAL-LANCET*, the editor calls attention to the dangers of novocain poisoning, and states that a maximum dose according to Merck is 8 grains. In a recent communication in the same journal, Farr states that there is no maximum dose, and he believes that novocain is absolutely safe if properly administered. Claus also reports a death following the opening of an antrum. In this case a 10 per cent novocain solution was used in the nose. Death was due to paralysis of the heart, and an autopsy failed to show a diseased condition in any of the organs of the body. The severe symptoms, however, did not follow the application of the novocain, but rather occurred following the puncture of the antrum; and he reported two cases of a similar kind,—one of cyanosis and dyspnea, and the other of apoplexy, which followed the opening of the antrum without any anesthesia. This record is the more remarkable when one considers that local anesthesia is used in many patients who on account of their low vitality and physical condition are unable to take a general anesthetic. It is, however, very probable that some patients possess an idiosyncrasy for novocain, and these constitute a large proportion of toxic cases reported, although a careful study would lead one to believe that many were hysterical. In some of these cases the preparation of the novocain solution was not correct, and in several of the British cases old solutions were used. We have

so far failed to find any toxic symptoms in our cases, although we have used as much as 250 c.c. of one-half of one per cent solution in a single case. Occasional nausea did occur; but whether this was due to the hypodermic of morphine administered before the local anesthesia was given or to the novocain itself, we were unable to determine. All surgical procedure is attended by some danger; but it is certain that the danger of toxemia following the proper administration of novocain and adrenalin is negligible, and it is a rather significant fact that no toxic or fatal cases are reported by Braum, who has used local anesthesia more extensively than any one in the medical profession.

By carefully questioning the patients who have been operated upon during the past year and to whom ether anesthesia has been administered, we have elicited the fact that what they most dreaded was, not the operation itself, but, rather, the loss of consciousness and the resulting nausea and distress caused by the ether. Some on whom secondary operations were necessary, have consented to return to the operating-room only on the condition that local anesthesia be used.

We believe that local anesthesia should be the method of choice, and not of necessity, in many cases, and that the psychical contra-indication has been much over-rated. As pointed out by Braum, as soon as the patient finds there is no pain he quiets down at once, even in lengthy and serious operations, and in children, when properly administered, its use is very satisfactory. Local anesthesia has made possible an accurate study of pain in the various tissues of the body. The skin, with its innumerable nerve-endings, is the most sensitive tissue of the body. The loose subcutaneous connective tissues possess very little, if any, feeling, except where conducting nerves contain sensory fibers. The same applies to muscular tissue. Tendons are without feeling. The connective tissue surrounding tendons, tendon sheaths, muscle, and the associated layers of connective tissue, possess varying degrees of tenderness. Periosteum, according to Piory and Blug, possesses no pain sense when in a healthy state. This, however, would not appear to be true considering the richness of its nerve supply, and we know that stripping the periosteum from the bone, especially in the region of the cranium, causes intense pain. There seems to be a difference of opinion in regard to the bone-marrow. Bichat claims that pain sense is more marked in the central part of the diaphysis of

long bones than towards the epiphysis. Cartilage is insensate; and joint capsules, ligaments, and synovial membrane are very sensitive. The mucous membrane of the bladder, according to our observation when doing suprapubic cystoscopy under local anesthesia, is much less sensitive in the region of the fundus than it is at the base. The brain gives absolutely no reaction to outside stimuli, and is absolutely insensitive to pain. This is true of the dura in the region of the convexity of the skull, but towards the base sensation returns. This fact opens a rich field for surgery under local anesthesia, and we know that it is much easier and more satisfactory to operate by this method because of the lessened congestion and intracranial pressure, which results from the stimulating action of ether. Lenander has made important observations on the sensibility of the abdomen and abdominal organs. He has proven that the peritoneum of the anterior and posterior abdominal wall, pelvis, and diaphragm are very sensitive to pain. The visceral peritoneum, even in a state of acute peritonitis, does not possess the pain sense. According to our observation the mesentery is sensitive, especially when traction is applied, the patient complaining of colic, which he is unable to locate definitely. Lenander has proven that the cerebrospinal nerves can receive and transmit painful impressions, while the sympathetic nervous system cannot. Lung tissue is absolutely insensitive, while the pleura is extremely sensitive, to pain. The only tissues, then, not requiring anesthesia are those of the brain, abdominal organs, and lungs.

Conduction anesthesia is usually combined with infiltration, and is not mentioned here except in so far as operations on the arms are concerned. The plexus anesthesia as used by Kulenkampff is not only successful, but very satisfactory, and it is probable that the reason that it is not used more is because of the fear of injuring the artery which lies close to the plexus at the point of injection. Kulenkampff has used this method many times with no serious results; a number of times the blood-vessel has been entered by the needle, but, provided a fine needle is used and there is no syringe attached, no harm is done.

A new and promising field for local anesthesia has been opened up by Lerda and Quenu, and this is in its use in fractures and dislocations. The only logical objection is the danger of infection, caused by the injection of fluid into the fractured or joint area. This danger must be very small because we can absolutely sterilize

the solutions before using them. Braun has used plexus anesthesia and local injections in 51 cases of simple fracture and luxation with very satisfactory results. Two of these luxations were of the hip-joint, and the relaxation obtained and the easy reduction without pain were very satisfactory. The method of anesthesia, where the nerves are not directly injected, consists in injecting the solution in and around the site of fracture. Braun states that there is one precaution which must be observed, and that is, the point of injection should never be where there is an abrasion of the skin or where it is crushed, thinned, or soiled. It is certainly a great advantage to reduce fractures and dislocations of the arm without general anesthesia, and to be able to examine the patient with the x-ray, and leisurely decide upon the best method of reducing the fracture and the best position in which to place it. Braun states that dislocations reduced in this manner are much more easily replaced than when the patient has general anesthesia. Our own personal experience is too limited in this special field to form an opinion as to its value.

Suprapubic cystotomy in old patients who have had retention for some time due to an enlarged prostate, is easily and successfully performed by the use of this method. Many of these patients cannot stand a general anesthesia; and even in those who are in good physical condition it is the method of choice.

It is unnecessary here to mention the many operations which can be satisfactorily done under local anesthesia. There are some however, in which, as stated above, local anesthesia should be a matter of choice. Among these may be mentioned simple inguinal and femoral hernias, operations upon extremities, suprapubic cystotomies, resection of a rib for empyema, certain cases of goiter, hemorrhoids and other minor rectal operations. I quote Braun and give his method for anesthetizing the anal region, because local anesthesia, when properly used in this region, is extremely satisfactory:

"To one who is unfamiliar with this subject there is something surprising in seeing the painlessness of a forced dilatation of the anus and the excision of hemorrhoids without a general anesthetic. It is, therefore, all the more remarkable that anal operations are still being performed under general or lumbar anesthesia.

"Before beginning operations of this kind it must be remembered that the bilateral blocking



of the trunk of the pubic nerve will not be sufficient to produce anesthesia of the anus. Neither will the filling of the ischio-rectal fossa with a .05 per cent novocain suprarenin solution be sufficient, even though the latter procedure causes a more reliable blocking of the branches of the pubic and posterior femoral cutaneous nerves, which supply the anus, than is produced by the uncertain injection of the trunk of the pubic nerve."

The further innervation of the anus through the coccygeal plexus and pubic nerve must be taken into consideration. Laewens' sacral injection produces a splendid relaxation of the sphincter ani and an anesthesia of the anal region. Unfortunately, it is not reliable and a better method is in circuminjecting the anus. In some operations about the anus the anemia produced by the suprarenin is of great value,—for example, in the Whitehead method of incision for hemorrhoids. The typical circuminjection of the anus, the principle of which was first described by Reclus, is performed in the following manner:

Four points of entrance are marked in the region, not too close to the anus, perhaps two or three finger-breadths' distance from the anal orifice. From these points a .05 per cent solution of novocain suprarenin is injected with a needle 10 c.c. long. The needle is first inserted perpendicularly parallel with the wall of the rectum, penetrating the sphincter and the levator ani. The needle is partly withdrawn, and again passed deeply to its full length, in an oblique direction toward the anterior and posterior walls of the rectum. At least 5 c.c. of a .05 per cent novocain suprarenin solution is continuously injected with each insertion of the needle. The same injection is made into the three other points marked, so that at least 60 c.c. would be used for the entire injection. The circuminjection of the anus is made from one point to the other in two different layers, one injection into the sphincter and the other into the subcutaneous tissue. For this 20 c.c. more of the solution will be used, making all together 100 c.c., and 125 c.c. in fat persons. These injections can be made without inserting the finger into the rectum. Occasionally, when the position of the needle seems doubtful, it may be controlled with the finger. Any one who is inexperienced should make the deep injection with the aid of the guiding finger. In the deepest injections, the point of the needle should be felt under the rectal wall above the sphincter. In women the injection is controlled

through the vagina. If, in cases of anal fissure, the finger cannot be introduced, on account of intense pain, it is well to follow the advice of Reclus, and previously make the mucous membrane insensitive by inserting cotton tampons soaked in an anesthetic (two per cent alapin suprarenin). An experienced person can dispense with this method. The sphincter relaxes in a very few minutes after the circuminjection, and can be dilated, excised, or cauterized as much as desired. The whole procedure should not take more than five minutes.

#### OPERATIONS PERFORMED UNDER LOCAL ANESTHESIA

Herniotomy Bassini .....	4
Herniotomy femoral .....	1
Thyroidectomy .....	10
Tumor of scalp .....	1
Gastrostomy .....	1
Lipoma of neck .....	1
Suprapubic cystotomy .....	6
Large post-operative-hernia* .....	2
Large lipoma of thigh.....	1
Ischio-rectal abscess .....	1
Removal of breast .....	1
Cholecystotomy and abdominal exploration.	1
Hemorrhoids .....	4
Urethral caruncle .....	1
Rib-resection (empyema) .....	5
Ingrowing toe-nails .....	8
Cauterizing epithelioma of face.....	3
Tumor of breast.....	2

#### DISCUSSION

DR. C. R. BALL (St. Paul): As a neurologist I welcome the interest which Dr. Strachauer's paper indicates as to the importance of surgical technic in surgery of the nervous system. I think the surgeon and neurologist are both vitally interested in this subject, but from different standpoints. The surgeon, of course, is interested in the improvement of his technic, so that he can expose the cortex of the brain or the meninges of the spinal cord with as little shock and injury as possible. The neurologist is interested in improving his technic as regards precision in diagnosis and localization. One can easily understand that it is not very much encouragement to the neurologist to diagnose and localize properly a tumor of the spinal cord and recommend an operation, and then have a surgeon, because of a clumsy technic, fail to obtain a good result.

On the other hand, I presume it is humiliating to the surgeon to be able to make a laminectomy in a certain location, and after performing a very skillful operation exposing the spinal cord where the neurologist has told him to, to find nothing in sight which justifies his efforts.

\*This patient had been operated on twice before and had vomited the wound open each time. She refused to take general anesthesia.



I was glad to hear Dr. Strachauer speak of the conservation of blood in these operations. As a student and practitioner I have often noticed, particularly in brain operations, a constant pattering of blood in the surgical bucket under the table, and, along toward the end of a tedious operation of two or three hours, the injection of hypodermoclysis, high saline enemas, and strychnine to relieve the shock, which was, correctly speaking not shock at all, but collapse due to excessive loss of blood.

A few months ago I had the opportunity of witnessing Dr. Cushing operate upon a plethoric individual for tumor of the cerebellum. The operation took something like three and one-quarter hours. Not being accustomed to Dr. Cushing's operations, towards the end of the operation I began to look for the hypodermoclysis, high saline enemas, etc., but they did not appear. After the operation I went down and inspected the patient, looked at the chart of the anesthetist, and saw that the relation between diastolic and systolic pressure was the same as when the operation began; the pulse was better than at the beginning of the operation; and the patient was in a comfortable sleep without any of the evidences of shock. The great care taken to control hemorrhage had made it possible for Dr. Cushing to keep his patient in good condition during the long operation.

A good point in favor of local anesthesia is the benefit of having the consciousness and direction of the patient. Having injected a great many cases of *tic douloureux* with deep injections of alcohol, I am deeply conscious of the great advantage which the knowledge of the patient's sensation is able to give in these operations, and I think it would apply to other operations as well.

From the standpoint of the neurologist, we are interested in improving our precision in diagnosis. It is not very difficult to locate the level of a lesion in the spinal cord, but it is exceedingly difficult, sometimes, to tell whether that lesion is intramedullary or extramedullary. There are two symptoms which I regard as very important in making this differential diagnosis—one is what is known as the "compression syndrome," that is, where the tumor is extramedullary it has been found in the great majority of cases that there is a large increase in the globulin element in the spinal fluid without a relative increase in the lymphocytosis. This in my experience is quite an important symptom in deciding whether a tumor of the spinal cord is intra- or extra-medullary, and therefore inoperable or operable.

Another symptom is the manner of development of the symptoms, whether it is bilateral, that is, symmetrical in development, or whether partially unilateral, the type of the Brown-Sequard symptom complex. Symmetrical development speaks against a tumor.

Just one word with reference to localization in recent injuries, which was called to my attention very forcibly recently. A man had his back crushed. I saw him a number of months afterwards. The surgeon had operated in the dorsal region for the relief of the compression, whereas the lesion was later found to be in the cauda equina. I asked myself why did he do that? We are told in spinal injuries the most frequent mistake made in localization is in not going high enough up. That is true in chronic conditions, but in recent injuries shock to the cord in addition to the actual

lesion must be considered; it makes the anesthesia extend up a considerable distance above the lesion, so that in operating for recent injuries we should remember either to wait for a number of days for the effect of the shock to subside or operate a considerable distance below the area of anesthesia.

DR. HARRY P. RITCHIE (St. Paul): In the years of my association with Dr. MacLaren and Dr. Daugherty, I will say that Dr. Daugherty has been active in the use of local anesthesia, while I have been the hesitating one because of a case that I injected with cocaine several years ago. The patient collapsed, and demanded extraordinary measures for resuscitation. This was at a time when we thought cocaine was the only anesthetic that we could depend upon as efficient. We also were delayed in our development of this method from the fact we were led to believe it was necessary to inject the nerve itself in order to get the effect. Those two points have retarded our progress in local anesthesia. The development of the chemistry of the alkaloids has given us, it seems to me, absolutely safe anesthesia. We are now able to demonstrate it is not necessary to inject the nerve itself, but that perineural injections are sufficient. When we can read of and demonstrate such extraordinary operations done under local anesthesia as have been reported by Drs. Strachauer and Daugherty, we may be sure we have something here that cannot be passed up, but it must offer an ever widening field for its application.

One thing favoring novocain is the possibility of its use in diabetics. I have one case in which a suprapubic cystotomy was done on a diabetic under local anesthesia. This operation, as preliminary to prostatectomy, I believe, is one of the greatest advances we have in cases of prostatic hypertrophy. This man came in with an acidosis and acetonuria. He was practically comatose, yet, notwithstanding his diabetes, we drained him suprapubically, under local anesthesia, after which he recovered so far as to permit a successful removal of the gland. His physician, who is in the audience, tells me today that he is a well man, whereas my associates on the university staff will tell you that this man looked when admitted for surgical care as though he was on his death-bed.

These papers have been of interest to all of us, and after what has been said, I am sure we have here one of the very great advances in our operative work.

I have had no experience with operations on the spine under local anesthesia, although I believe that the operation of laminectomy has been performed frequently in foreign countries in this way.

It is claimed that the covering of the cord is very sensitive in contradistinction to the covering of the brain,—the dura. All authorities, so far as I know, claim that the dura in its upper portion is not sensitive. In a case I trephined a few months ago, an intelligent man and teacher, who talked with me all through the operation, and in which I turned down a large Wagnerian flap, I found it impossible to put a needle through the flap without the most intense pain, which was referred to the eyes.

I find that I disagree frequently with Lennander's findings in abdominal cases. In a case of intestinal resection under local anesthesia, the patient had pain every time I put the needle through the intestinal wall, although there was no traction upon the mesentery.

In cases of right ovarian cysts with chronic appendicitis, we have been able, by pinching the appendix and the pedicle of the cyst, to duplicate the pain which brought the patient to us,—that is, we have been able to decide which of these organs was causing the pain. This study has been very interesting.

I cannot satisfy myself that the absence of pain will absolutely prevent shock, though I believe that Dr. Crile is right in a degree. His claims may be a little extreme, and I have had the experience, as Hertzler reports, of having a patient "fade away" while I have been doing an extensive operation, where I had everything blocked so perfectly that there was no pain whatever. The sympathetic nervous system must be reckoned with, I believe.

Of late I have been trying a method which eliminates, to a large extent, psychic shock, but time will not permit me to describe this.

DR. JAMES E. MOORE (Minneapolis): Up to five years ago my experience had been unsatisfactory, like that of many others; and I want to warn the gentlemen here against a similar experience. I was afraid of cocaine, which was about the only drug we could use then, because I happened to have a personal idiosyncrasy that made it nearly kill me one time in an oculist's chair, and my technic was bad. That is the point I want to warn you against.

A number of you will be inspired by these two papers by these young men we are all so proud of as to the use of local anesthesia. You will go home, and you will think all there is to it is to inject novocain, and that will do the business. You do that, and you will undertake the operation, and the patient will have pain, and you will at once say this is all humbug, or these patients are over-sensitive. The trouble will be with yourselves: you will not carry out the technic. There are a right way and a wrong way, and to follow the right way you must possess a knowledge of the exact technic of administering local anesthesia. When Dr. Strachauer returned from abroad, some five years ago, and brought these advanced ideas on local anesthesia to us, and stood across the table from me, some of the work he did was certainly a revelation. I remember very well the first case. There was a thick-walled hydrocele I had to dissect away; my patient was unfit for a general anesthetic. I did the operation under local anesthesia with perfect satisfaction.

The last operation I did before I retired from private practice was one in which Dr. Strachauer gave the anesthetic for me. The case was one of empyema, and the man was unfit for a general anesthetic. It was a perfect success in every sense of the word. In the hospital service the work is most gratifying. For instance, a man came in with a badly infected hand; and you know how sensitive the hand is to operative work. Dr. Strachauer injected novocain solution, into the brachial plexus. He cut the hand far and wide, and the patient was perfectly comfortable.

There is something practical that needs to be learned from the use of local anesthesia, and that is, it enables us oftentimes to do a two-stage operation which is a life-saving measure. It is a particularly life-saving operation in these cases of old men who come in nearly dead with enlarged prostates and who are utterly unfit for a general anesthetic. If we did not have a well-developed technic of local anesthesia and use it in

such cases, I am sure that with a general anesthetic the majority of them would die from its effects.

DR. E. H. BECKMAN (Rochester): I want to testify to the value of local anesthesia in the class of cases Dr. Strachauer has mentioned, particularly brain cases and laminectomies. Operations on the cerebellum are usually attended with a great deal of shock, more so than on any other portion of the brain; and these operations can be performed as a two-stage operation, doing the first stage (removing the bone) with a light general anesthetic, and then a week later doing the exploration of the brain under a local anesthetic with almost no difficulty at all.

I have had the same experience that Dr. Ritchie has had with one case,—that is, whenever a certain portion of the dura was handled the patient complained bitterly of pain in the eye on that side. I was never able to determine exactly why, but I remember distinctly that, in a brain case explored under a local anesthetic, on one side in particular, when the dura was handled, the patient complained of a great deal of pain in the eye on that side. It is quite customary in Europe to do a great many brain cases in two stages. I remember hearing Dr. von Eiselsburg say that he always did them that way. I think that it is unnecessary, and I prefer to do them in one stage; but they can be divided into stages if a patient is in a bad condition. A second stage operation should be done under local anesthesia.

Dr. Crile and Dr. Bodine are the two men who deserve the most credit in this country for advancing local anesthesia. It should be remembered at this time that the supply of novocain is about exhausted, and that it is difficult to obtain, so that we must conserve our supply at the present time. We much prefer novocain in our Clinic, and we have had no ill effects from its use. Our method is to use half of one per cent which we find about as efficient, if properly used, as a stronger solution.

DR. EMIL S. GEIST (Minneapolis): I wish to second what Dr. Moore has said regarding the technic of administering local anesthesia. In the last year and a half, I have had Dr. Strachauer assist me in some rather complicated joint cases, and in each case the operation has been performed successfully and the patient felt no pain. If I had attempted to do this work without Dr. Strachauer's able technic, I am sure the patients would have suffered pain.

In this connection, there is a point I want to mention; it is, that I have been using local anesthesia in cases in which I have not used it before. I do not know whether the use of local anesthesia has ever been attempted in exactly this manner. In several cases of early knee and hip tuberculosis I have been able, by the injection of a novocain solution directly into the joint, to relieve pain so as to abolish spasticity and make it possible to give the limb a good primary position before applying a fixation appliance.

DR. D. A. HERRON (Comfrey): I have been practicing for a considerable period. I have used local anesthesia in minor operations and in a few major accidents. I have found novocain very efficient, but I would like to ask one of the essayists what he thinks of dilute solutions of quinin and urea hydrochlorid, say one-half or one per cent? There can be no objection to this except that it requires more time between the injection and the time of beginning the operation.



DR. E. J. BROWN (Minneapolis): I did not hear these papers or much of the discussion; however, I caught the drift of it. I have used hydrochlorid of quinin, but not the urea salts. I have used hydrochlorid of quinin in tonsil and adenoid operations for several years with almost uniform satisfaction, first painting with a twenty per cent cocaine, and then injecting freely a solution of about one and a half per cent of hydrochlorid of quinin, and have not only found this a satisfactory anesthetic, but the anesthesia would last from twenty-four to thirty-six hours. There would be comparatively little pain attending operations for the removal of tonsils or adenoids. If novocain is going to be cut off of the market, you will find it useful to employ the salt of quinin.

DR. STRACHAUER (closing): In consideration of the time that has been devoted to the subject of local anes-

thesia I shall close by simply referring to the question brought up in regard to the use of quinin hydrochlorid and urea. Personally, I have had only a limited experimental experience, which I soon discontinued, because of the very complete satisfaction given by novocain. Quinin hydrochlorid and urea are practically non-toxic as employed in local anesthesia work, but wound-induration and interference with tissue-healing have frequently followed their use, and a number of reporters have cited cases in which there have followed large areas of sloughing.

A MEMBER: Is not that due to the strength of the solution used in the early cases?

DR. STRACHAUER: I do not know, but I wish to call the attention of the Association, as a warning to the unfortunate results reported.

## ORGANIZATION AND CO-OPERATION\*

By J. GRASSICK, M. D.

GRAND FORKS, NORTH DAKOTA

Organization and co-operation are the key-notes to success in our modern social, commercial and professional activities. There is no line of economics that is not directly influenced by them. There is no department of human effort that does not respond to their touch. From the big business, with its millions of capital, to the small trader who is "staked" for his stock; from the pastor in a metropolitan pulpit to the missionary on the frontier; from the clinics in our great medical centers to the isolated country practitioner, organization spells success, while the lack of it spells failure.

Commercialism is coming to be so interwoven with the fabric of our professional life that he who would aspire must take notice of the trend of events, and be governed thereby. There is still room for our "Weelum McClures"; and thank God, we have them still with us, but we should not lose sight of the fact that those of our profession who are doing the big things, who are doing the most for their fellow men in alleviating human suffering and in lengthening the span of human life, are not of that type. As is so aptly stated by Dr. McGuire: "We seem to have lost a character dear to literature, and gained a type perhaps less ethical and more mercenary, but it is certainly a scientific instrument of greater professional efficiency." An isolated worker is like a tethered ox in a field of plenty: his supply is limited by the length of the picket rope. To be bound within the limitations of self-

ish and individual interests is to be deprived of everything that cannot be circumscribed within the radius of your cable tow. No progress ever evolved from such a conception of science; no hermit ever reached great heights in the world's galaxy of immortals; no isolated nation ever managed to keep up with the world's march of progress; no great movement for the uplift of humanity was ever confined to a single people. An individual, a community, or a nation may possess the necessary elements of knowledge that go to make a successful career, but it requires the friction of mind on mind to bring out the luster, the stimulation of work well done to increase the efficiency, and the co-operation of your fellow craftsmen to promote the spirit of brotherhood and helpfulness. It further requires the organization of our working forces that dilatory and wasteful methods may be eliminated, that our resources of mind and body may be conserved, and that the best that is in us may be made available for the uplift of humanity. In this way the individual unit, be it man, profession, community, state, or nation, is developed, the latent powers take on activity, the dormant energies spring into being, and the whole organism bursts into newness of life. Truly, it may be said: "No man liveth unto himself alone."

Probably the most insipid thing in the whole domain of medical practice is an ordinary consultation. It usually develops into a mutual professional love-feast on the one hand, or an ultra-antagonistic attitude of one or more of the consultants on the other, neither of which is con-

\*Read at the 34th annual meeting of the North Dakota State Medical Association at Bismarck, N. D., May 12 and 13, 1915.



ductive to the best interests of the patient. Our ethics demand "the strictest caution and reserve in our intercourse with a patient under the care of another physician" (Chap. ii, Art. iv, Sec. 1); and, again, "all the physicians interested in the case should be frank and candid with the patient and his family" (Chap. ii, Art. iii, Sec. 2). So you may take your choice; be mute or garrulous, and still be ethical. The day of arm-chair diagnoses, happily for the good of the people, is becoming a thing of the past. Patients are demanding, as never before, up-to-the-minute tests; and they fail to be satisfied with anything short of this. With this evolution of sentiment, the day of individualism in medicine is passing. The one-man organization is badly handicapped. Few men are so constituted that they can do more than a few things well. Hence, we have our specialists who devote their time and talents to some particular subject. But the specialist is again handicapped, for there is such a co-relation and such an inter-dependence of function of the different organs of the body that he, through a recognition of his own limitations, is constrained to consult other specialists; and so in this way has been evolved the modern medical and surgical organizations that are revolutionizing our methods of practice. Our age is calling for such co-operation of forces, and, I believe, we but deceive ourselves if we neglect to listen to the cry. We have in our own and neighboring state many concrete examples of what organization and co-operation will do for scientific and progressive medicine and surgery. Such organizations make possible laboratory facilities, without which modern medicine would be a misnomer. They make possible a consultation of experts with no other end to serve than the proper solution of the problem under consideration. They make possible a conservation of material resources. They make possible an accumulation of medical and surgical data of great value to the profession, as well as to the public. They make possible a profession skilled in the application of the latest devices of our art for the diagnosis of disease and the relief of suffering. True, there may spring up a spirit of rivalry between the members of such an organization, but it will be of such a nature that anyone would do well to emulate. It will be a rivalry that stimulates the spirit of investigation and research, a rivalry that acknowledges no allegiance but to truth, a rivalry that places the weal of the patient paramount to all other considerations, a rivalry that

has for its goal the greatest good to the greatest number of our fellow men.

The call of the hour is for public service; and we should be unmindful of the ideals of our profession if we did not avail ourselves of this enlarged vision. It is the community of interests that is the controlling force in modern progressive movements. Unless we get together and demonstrate by our actions that we are alive to the best interests of ourselves, our community, and our fellow workers, we can hardly expect to be more than we are. There was a time, and not long ago, when the practitioner of medicine was surrounded with a halo of privacy, when anything like publicity was regarded as an intrusion, alike inimical to the best interests of his patients and the profession. Of late this veil has been ruthlessly removed, and the glaring headlight of publicity has been flashed on his actions. He finds his patient's ailments heralded and discussed on the telephone throughout the neighborhood before he has had time to leave the sick-chamber. He finds his diagnoses and treatments subjected to a professional and lay scrutiny that at times is anything but comforting. He finds that his isolation and individuality are being alike annulled. He finds in short, that he is bound in a thousand ways to his environment, and individual welfare, professional welfare, and community welfare are all bound together in a larger way than is generally supposed.

Our Association furnishes opportunities for working out these evolutionary changes in our profession in its relations to its membership and to society, for the education of the public in medical affairs, and for the education of the practitioner in public business and in the benefits that come from organization and co-operation. These altered conditions may in individual cases lead to a loosening of the personal tie between the patient and his doctor; but, on the other hand, they will surely establish a stronger bond of confidence among the several members of the profession, and ultimately lead to the establishment of a closer bond of sympathy between it and the public. These are surely "consummations devoutly to be wished."

I believe the time is now ripe when we should take the public more into our confidence, when we should remove the veil of mystery that has for so many centuries hidden or obscured the fundamental truths of our calling from the vulgar gaze, when we should not only invite, but welcome, lay visitors to our meetings and give them

a voice in our discussions, when we should arrange for open meetings with special programs covering the various phases of progressive public-health work and other subjects of general interest bearing on personal or community health, when we should establish a press bureau and give to the general reader at regular intervals a censored summary of advanced medical and surgical information, when we should have an active participation in some form of public-health activities, and thus demonstrate that the altruistic ideals of our profession are something more than a name.

At this juncture it might be well to take an inventory of our available assets, and to analyze some of the conditions that have a direct bearing on our Association and on our profession.

We pride ourselves that we are in the center of the most productive region of the Northwest. The material resources of our state have been growing by leaps and bounds, while our population has been increasing at an equally rapid pace. Our last National census places us fifth of all the states of the Union in percentage of increase during the preceding decade. We have therefore a harvest ready for the reaper; and it is up to us to go in and take possession, appropriate our just share of the vintage, or leave it to our enemies. We have in our state according to the last United States Census reports, 924 persons listed as physicians and surgeons, which doubtless includes irregulars, as well as regulars. We have in our Association 318 (1914) members, only about one-third of the above number; but, making all due allowance for irregulars, we still have less than half of those enrolled who are eligible for membership; in other words less than 50 per cent of the regular physicians of our state are availing themselves of the benefits of our Association. An examination of our records shows that for the past decade we have been practically at a standstill, content to lag behind or at best to drift with the stream, barely holding our own. To be exact, we have allowed our membership to decrease 15 per cent in the past five years; and all efforts to stem the tide have apparently failed of their purpose. This decreasing membership in the face of increasing benefits and privileges would seem to indicate that there is a spirit of unrest and dissatisfaction among the rank and file of the profession. I believe you will agree with me that this condition of affairs is not very creditable to our Association, neither is it conducive to the social, material, ethical, or professional betterment of the members of our

craft nor to the well-being of the people among whom we labor. A divided profession leaves us open to censure, and deprives us of much of the influence which rightly should be ours. This is not a theory; it is a condition that we face, and a serious one at that, and it devolves upon us to ascertain, if we may, to what extent, if any, we, individually as members, or collectively as an Association, are responsible for it. An interesting side-light is cast on the question by our State Secretary in his last year's annual report, when, noting our decreasing membership, he says: "It occurs to me that since the Councilors do not make the visitations required by the Constitution, it might be left to the Secretary or some other authorized person to make annual visits to the several component societies. It would be productive of much good."

This leads us to inquire what are the duties of the councilors that are unperformed that our Secretary in the goodness of his heart wishes to take over. According to Chap. vii, Sec. 2 of the Constitution, "each Councilor shall visit the counties in his district at least once a year for inquiring into the condition of the profession and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his work and of the condition of the profession of each county in his district at the annual session of the House of Delegates." It would appear that these very important duties being left undone year after year, might very readily be the cause of much of the unsatisfactory condition already alluded to, especially so, if the President, "the real head of the profession in the state," neglects to "assist the Councilors in building up the county Societies and in making their work more practical and useful." Can it be that our Association is so super-organized that it is content to exist on its traditions, that it is willing to allow its fires of progress to smoulder and die for lack of service, or that it is so wrapt up in its own sufficiency as to take no notice of the signs of the times? The remarks of our Secretary already quoted would seem to bear this interpretation.

No one who has had his ear to the ground for the past few years could fail to have heard the rumblings of community unrest throughout the nation. This is not kept within the limits of politics, but has pervaded every avenue of human endeavor. There is a movement towards a broader democracy in which the masses of our people are striving for a more direct voice in the nomination and election of public officials and in



the enactment of legislation. The primary laws, the election of United States Senators by popular vote, the initiative, and referendum are cases in point. The demand of the people for direct participation in and control of political, public or private affairs, is a factor that must be reckoned with. We may sidetrack the issue or even ignore it, but "it will not down." Is our Association immune to this wave of social and industrial development that is irresistibly sweeping over the country? Are we so entrenched in, and so bound up with our system that we can afford to disregard "the handwriting on the wall"?

Our organization calls for a "General Session" and "House of Delegates," the latter the legislative and business body. The House of Delegates is practically a closed corporation so far as the great mass of membership is concerned, for, although the Delegates are elected by the several units and are in this sense representative, the organization becomes governed by a system of precepts that serve to perpetuate its personnel. In the matter of the election of officers our constitution calls for a president, three vice-presidents, a secretary, a treasurer, and ten councilors. It has been an unwritten law that a nominating committee shall select members to fill these positions, the requisites being attendance at the annual meeting and acceptability to the committee. The question of attendance at, or interest in, their local societies, or of the services they have rendered the profession are lost sight of in adherence to the system. When we appoint such special committees from the house of delegates and re-appoint them to the same positions year after year, we foster a tendency to direct and maintain policies in accordance with a pre-arranged program. Such methods may appear under the

guise of organization, or even may be adopted as routine without thinking of the influence they may have on the Association; but, surely, they are not calculated to secure the greatest co-operation of the profession, without which, as an Association, we fall short of achieving that degree of success which should be our aim. Would it not be practical and more in accord with the ideals of our profession, as suggested by Chap. iv, Sec. 10, of our By-Laws to so arrange affairs that the individual members might have a little more to say in matters of general interest, or that the local societies as suggested by Chap. iv, Sec. 9 might have a hope of seeing those who had "won their spurs" recognized and honored by the State Association? We feel that some such effort would do much to create an interest and to promote a spirit of co-operation among our membership without materially interfering with our principles of organization.

The democracy of the future, be it medical or social, is the public of the future. It rests upon a foundation of education and enlightenment of the masses. If upon this rock we erect a superstructure of mutual interest and organized co-operation, the winds may blow and the floods may come, but it will stand.

To those of us whose sun has passed the meridian and is nearing the western horizon, and whose day's work is almost finished, the future of our Association is of very little consequence, but, to the great mass of our members, young, virile, progressive, and ambitious, it means much.

"Then give a toast together here  
For the Northwest,  
For all that's best,  
And for an even greater year."

## INFECTIONS OF THE MOUTH\*

BY GORDON B. NEW, M. D.

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The most important foci of infection of the body are found in the mouth and upper respiratory tract, including the nose, sinuses, pharynx, trachea, tonsils, gum-margins, tooth-sockets, and jaws. Only infections of the mouth will be discussed in this paper. These may be divided into four groups: (1) alveolar abscesses; (2) infections about unerupted teeth; (3) infections

about ill-fitting crowns, bridges, and fillings; and (4) pyorrhea.

*Alveolar Abscesses.*—Alveolar abscesses are important foci because of the fact that only a small percentage cause local symptoms and usually the patients are quite unaware of their existence. Röntgen photographs are essential in locating them, in fact are the only sure method of determining their presence. These abscesses may be the so-called blind abscesses, or they may

\*Read before the Central State Orthopedic Society, October 13, 1915.



be draining through the alveolus. As to their etiology: the infection may occur from the root-canal of a tooth, or it may be hematogenous in origin. Ulrich recently examined, by means of the Röntgen ray, a series of jaws of ward-patients, and found that 80 per cent of the dead teeth were abscessed. This was followed by the examination of a similar series of private patients, and an equally high percentage of abscessed teeth were observed, therefore excluding poor dentistry in the ward-patients as the cause of the abscesses. He cultured 159 abscessed teeth, finding streptococci in 150, and believed



Fig. 1. Small abscesses around all the lower teeth on one side of the jaw. This type would seem to be hematogenous in origin.

this an indication that a high percentage of the abscesses were hematogenous in origin, as it would have been impossible for the dentist to infect so many patients with streptococci. Observations in our Clinic do not show so high a percentage of alveolar abscesses in the Röntgen examination of dead teeth. Many patients are observed, however, in whom the abscesses are about half way up on the root and with no apparent connection with the apex of the tooth or the gingival margin; and also patients in whom every tooth on one side of the jaw shows abscesses about equal in size. This type seems to be hematogenous in origin. Alveolar abscesses have not as yet been made experimentally in animals by means of streptococci; but the evidence at hand would seem to prove that a large num-

ber of these abscesses are due to infection through the blood.

*Infection about Erupting Teeth.*—Infection about erupting teeth, especially the lower third molars, is a common source of general infection. About one and one-half years ago I had an acute arthritis of the wrist, shoulders, knees, and ankles ten days after a severe infection around an erupting wisdom tooth. The gum-tissue overlapping these partially erupted teeth forms a deep pocket which harbors infection. The irritation of this mucous membrane by mastication frequently causes traumatism; and exacerbations of acute infection are common. The unerupted cuspid tooth is probably the next most likely to give trouble.

*Infections about Ill-fitting Crowns, Bridges, and Fillings.*—This type of infection is due to

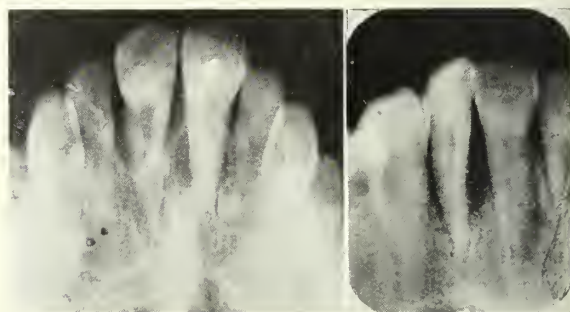


Fig. 2.

Fig. 3.

Fig. 2. Abscess about the central incisor apparently not connected with apex or gingival margin. The type is possibly hematogenous in origin.

Fig. 3. Pyorrhea. Large pocket around lateral incisor not demonstrable until röntgenogram was taken.

the poor dentistry which has been done throughout the country and which has brought very severe criticism on the dental profession as a whole. The crevices formed by these ill-fitting crowns and poorly made fillings irritate the gingival margins, and pockets are formed in which food lodges, and frequently pyorrhea develops from irritation of the gum-margins. All these conditions tend to make a filthy mouth and good media for the development of all kinds of organisms.

*Pyorrhea.*—The study of this condition has recently been stimulated by articles of Bass and Johns and Barrett and Smith, the former holding that the ameba buccalis is the cause of pyorrhea and that the use of emetin will rid the mouth of the ameba and ultimately cure the condition. The subject has been taken up by many pathologists and dentists throughout the country, but recent reports are not so convincing as those made by the original investigators.

Dr. Sanford and I have studied 327 cases of pyorrhea.\* These were classified into five groups: pyorrhea 0, 1, 2, 3, 4, depending on the amount of infection in the mouth, and not on the amount of infection about any one tooth or group of teeth. Pyorrhea 0 indicates that the mouth is free from gingival irritation of ill-fitting crowns or fillings. Pyorrhea 1 indicates an early pyorrhea, possibly of the lower incisor teeth. Pyorrhea 2 and 3 are graded in their relative positions; and 4 indicates a very extensive pyorrhea. Smears from the crevices of the gum were made by me, and examined immediately on a warm stage by Sanford. The work of classifying the cases and examining the smears was done separately, and the statistics were not compared until the series was completed.

TABLE

Grade of Pyorrhea	Number of Patients	Entameba Buccalis	Percentage
0	58	8	14—%
1	51	22	43+%
2	89	55	62+%
3	88	63	71+%
4	41	33	80+%
Total	327	181	55 %

Thirty-three cases of pyorrhea were treated with emetin. The ameba was demonstrated in all cases before instituting treatment. Röntgenograms were made; and all abscessed teeth, and all that were too loose to be helped by treatment, were removed. Emetin was given in from one-third to two-third doses of Lily's ampules or Lily's alcestra tablets two or three times a day. Negative smears for ameba were obtained in all the cases in from four to seven days. But little improvement, if any, was noted in the amount of pus present or the general condition of the mouth. These patients were then sent to a local dentist to have all deposits removed and the teeth thoroughly cleaned; no medicines were used. After this treatment, marked improvement was noted. The rather unsatisfactory results in this group of cases suggested that we try the use of emetin in a second group of cases. The second group constituted cases of pyorrhea that had been extensively treated by local dentists, and by dentists throughout the state, and still showed a great deal of pyorrhea. We selected twenty patients of this type for treatment, but only eight were willing to receive a thorough course of the emetin a sufficiently long period to make their study of any value. Before treatment they were

examined by local dentists, who seemed to think that all the local treatment necessary had been given. The ameba was demonstrated, and the patients received emetin as in the first group over a period of from two weeks to a month, with results no more encouraging, although the smears became negative for ameba.

While the results in these small series of cases are not convincing, we do believe that the series of cases in which emetin alone was used after thorough dental treatment, and not associated with dental treatment, gave better proof as to its value than the large series in which emetin and the dental treatment were used at the same time. Many of the patients whom we sent to the dentists for cleaning were completely cured by this treatment alone.

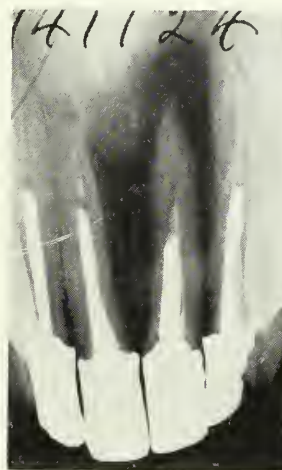


Fig. 4.

Fig. 4. Extensive alveolar abscesses.

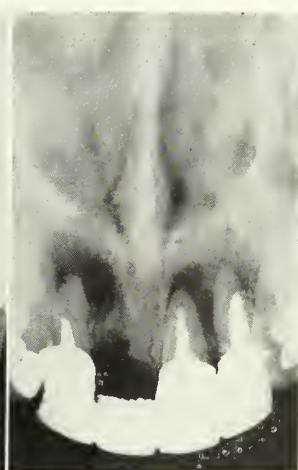


Fig. 5.

Fig. 5. Multiple alveolar abscesses around incisor teeth.

*Treatment.*—It should be borne in mind that during an acute general infection it is not best to attempt to remove the foci of infection, for frequently the general condition is made worse by such treatment. Also, if several abscessed teeth must be removed, or a mouth containing a great deal of pyorrhea is to be treated, it is better to take care of a few teeth at a time with four or five days to a week between, so that the patient may get several small doses of the toxin or vaccine caused by removing abscessed teeth or by treatment, and not one overwhelming dose at a time. The question comes up whether or not abscessed teeth, considered possibly due to secondary infection, should be removed. Most patients feel that the sacrifice of a few teeth is a small matter compared with the possibility of



getting relief from the general infection. It is well, however, to be guarded in the prognosis in removing foci of infection in cases of arthritis. The results of the treatment by removing foci seem to classify the cases of arthritis into two groups: first, acute arthritis, rheumatic fever, and pain in joints and muscles; second, chronic arthritis. In the first group the results of removing foci are markedly beneficial; in the second group the patients receive benefit in only a small percentage of cases. In other words, the early cases of arthritis are benefited, while the later cases usually are not, probably due to the amount of pathological change present.

It would seem that in the future the conscientious

dentist, knowing the terrible suffering and mortality of the results of the past era in dentistry, would warn patients of the possibility of the presence of dead teeth in the mouth and discuss with them the danger of the use of crowns and bridges. Unless the dentists of today can perfect their technic so as to give all their patients clean mouths, free from abscesses and gingival irritation, the old-time dentist who extracted teeth and put in plates was really a more useful member of the profession, for with his methods the mouth at least was kept free from foci of infection.

The illustrations show infections in the jaws in cases of arthritis.

## ANAEROBIC BACTERIA AND THEIR RELATION TO SURGERY\*

BY G. H. TWINING, M. D.  
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The public is generally concerned with reports of losses emanating from war-scourged Europe, but the reports of the actual causes of death among its soldiers are of more than passing interest to our profession. Of great importance among these causes and of especial interest to me, because of a recent fatal case in my own experience, is that type of infection known as gaseous edema. I shall not consider at this time tetanus, the other important type in this group.

It is of particular historical interest that a Frenchman, Maisonneuve, in 1853, should have given the "first comprehensive description of this highly fatal disease" now known as *gaseous edema*, in that at the present time, on French and Belgian soil, it has come to be one of the gravest infections which have to be dealt with in the treatment of lacerated wounds produced by artillery fire,—that this is particularly characteristic of the wounded in these countries, is due to the fact that the intensive method of cultivation is practiced there. For years this method of cultivation has been carried on by thoroughly fertilizing the ground with manure, thus affording a favorable habitat for this particular type of anaerobic bacteria.

Numerous writers describe this organism, giving its clinical, pathological, and infective nature; and yet considerable confusion exists because of its great multiplicity of names. It remained for

Welch, and, later, Nutall, in 1891, to dissipate this confusion, by isolating from the blood and tissues of a man dying of a ruptured thoracic aneurysm, the organism *bacillus aërogenes capsulatus*, the chief infective organism, as we now understand it, of gaseous edema.

In contrast to this generally accepted statement, we read in an important report recently made to the English government by Sir Anthony Bowlby and Dr. W. S. Rawlins, that ten different organisms have been isolated from cases of gas gangrene in the human body, all of which are closely allied, and have the common characteristic of being anaerobic spore-bearing organisms.

The observations of Dr. Weinberg, of the Pasteur Institute of Paris, have revealed the fact that the *bacillus perfringens* has always occurred among the germs that are found in the wounds invaded by gaseous gangrene. Dr. Weinberg concludes that this may be the *bacillus* causing this complication, and he has prepared both a serum and a vaccine, the use of which, in a few cases at least, has resulted in a rapid improvement. From these reports it would therefore seem that further bacteriological study is required to determine whether these organisms are really different, or whether they are different strains of the same organism. Also that, although the cultural characteristics of the *bacillus* of malignant edema and of the *bacillus aërogenes capsulatus*, are described by certain bacteriologists as of two distinct organisms, yet, clinically,

\*Read at the 34th annual meeting of the South Dakota State Medical Association at Sioux Falls, May 18-20, 1915.



it is quite well agreed that the symptoms produced by each are the same.

Gas bacilli, though natural inhabitants of the soil, are also found in the intestinal tract of man and other animals, and sometimes, though rarely, upon the skin. Though our literature covering the subject has its origin largely in the Eastern states, the organism itself is of widespread distribution; and, without doubt, a considerable number of cases have occurred in our own state, especially in the larger cities, where accidents are more common, and contamination from street dirt probable. Mixed infections are possible, and cases of double anaërobic infections have been reported, the symptoms of a late tetanus superseding those of gaseous edema.

Morphologically, the bacillus is a large spore-bearing organism, occurring chiefly in pairs and in irregular groups. It is non-motile, takes the ordinary stain well, and is gram-positive.

Pathogenically, the power of the bacillus is limited, and being anaërobic it is unable to develop in the circulating blood. Its power to do injury depends upon the devitalization of the tissues; and it has been observed that it is not found at any great distance from the point of injury, but, like the Klebs-Loeffler, develops a toxin locally, the absorption of which causes its deadly effect.

Pathologically, post-mortem examination reveals a gangrenous necrosis, a diffuse edema, or the presence of gas bubbles in the tissue spaces, and an exudation of bloody serum.

Histologically, the nuclei stain poorly, and there is an absence of inflammatory reaction, such as is seen in the ordinary infections. The blood and internal organs may contain bubbles of gas, and when pus is present it is due to a mixed infection, usually the streptococcus or the staphylococcus.

The symptoms following an infection are quite uniform, and are almost invariably associated with compound fractures, with gun-shot wounds, or with wounds in which there is a marked tissue-destruction. The onset is rapid, usually from twelve to thirty-six hours; there is considerable pain, which seems to be out of proportion to the injury received; and a copious serous bloody discharge exudes from the wound. The discharge has a sweetish, foul-smelling odor, which is said to be diagnostic. The patient often complains of chill, followed by high fever and a rapidly increasing pulse. The skin around the wound assumes a livid, reddish hue, due to the hemolysis of the blood. Blebs may be present.

The prognosis in these cases is grave, and the fatal results have been variously estimated at from 50 to 60 per cent. The prognosis depends upon the condition of the seat of the infection as to whether the same is superficial or deep, how early the condition is recognized, and how efficient the treatment.

Prophylactically, all cases in which there is severe contusion of the tissues should potentially be considered as the seat of gas-producing organisms, especially in cases of gun-shot wounds and compound fractures where street dirt has been a source of contamination. Care should be exercised so that casts and bandages are not applied too tightly; and the cause of any unusual temperature should be investigated. After a thorough cleansing with tincture of iodine, the removal of foreign bodies, if any, and the institution of adequate drainage, a close watch should be kept on the wound for the first twenty-four to forty-eight hours for symptoms of gas-infection. At the first indication of this infection, the part should be laid widely open (in this there should be no hesitancy), and irrigated with hydrogen peroxide every half hour or so, and moist hydrogen peroxide dressings applied. If, in spite of this treatment, the condition continues to spread, amputation should be performed where possible, the site of the same being well above the seat of the trouble. If amputation at such a point be impracticable, it is of value to know that recoveries have been reported where amputation has been carried through the edematous tissue. The stump should be treated in the same manner as the incised part before mentioned. Antitetanic serum may be used as a prophylactic measure, if deemed advisable.

#### A CASE

S. G., a Bulgarian, aged 30, was admitted to Mobridge Hospital, April 1, 1915, at 7 p. m., suffering with gun-shot wound of the left femur at the junction of the middle and lower third, which had lacerated the tissues and produced a comminuted fracture of the femur. Expectant treatment was decided upon, though the wound was thoroughly iodinated, a sterile dressing applied, and the limb was put up with Buck's extension. Shortly after admission the pulse was 126; temperature, 99°; and respiration, 24. The man complained of severe pain for the control of which it was necessary to administer several doses of morphine. A bloody serum discharged rather freely from the wound. At 12 noon on April 2, seventeen hours after admission to the hospital, the pulse was 110; temperature, 102.6°; and respiration, 28. Shortly after this time the pulse began to increase in frequency, and by 8 p. m. was 160. The temperature in the meantime had dropped to 100°. A

peculiar odor was noticeable, and examination of the part revealed a much swollen limb with a suggestion of a peculiar ecchymosis resembling a beginning post-mortem lividity. On palpation, especially along the femoral sheath, the tissues crackled, and bubbles of gas escaped from the wound. Amputation through the hip seemed to be absolutely contra-indicated on account of the condition of the patient. However, he was anesthetized, the wound was freely opened, and hydrogen peroxide was poured into the tissues. He became gradually more and more toxic, and died at 6 A. M., April 3, thirty-six hours after the accident.

The points to be emphasized in a condition of this kind are—

First. All severely lacerated tissues should be potentially considered as the seat of this infection, especially in gun-shot wounds and in compound fractures. (From what I could learn in talking with men whose experience has been greater than mine, the number of cases in our own state has been exceedingly small.)

Secondly. One must remember that the onset is very rapid, coming on usually within a few hours.

Thirdly. The prognosis is rather grave, depending upon the nature of the wound, the condition of the patient, and the method of treatment.

Fourthly. The treatment is surgical. In a report from either the Bellevue or the Roosevelt Hospital of New York, one learns that encouraging results have been secured from multiple incisions and the use of peroxide of hydrogen. In some instances, incisions being made in all sides of the limb, avoiding the important structures, from the trochanter down to the heel. In other instances oxygen gas was forced into the tissues, and continuous hot irrigations supplemented this treatment. I believe it to be to one's advantage to attempt this method of treatment before resorting to amputation.

#### DISCUSSION

DR. B. A. BOBB (Mitchell): I will say that my experience along this line has been limited to two cases. While surgery is undoubtedly the practical thing to do, still in the two instances that I have had surgery was not done for the patients in time, and time seemed to be the element of greatest importance. One patient died. In this patient the gangrene started immediately, after the accident, at the toes and proceeded upwards, and the foot was amputated at the instep just before the patient was brought to the hospital. The gangrene still proceeded upwards, and the leg was amputated just below the knee immediately after the patient was brought into the hospital, where there seemingly was no trouble at all, for even eight or ten inches; and still it progressed right on up to the middle of the thigh, and then we waited, and I had a physician, an acquaintance of the man, come on from Omaha. (I have for-

gotten his name.) He advised amputation at the hip, but the people would not stand for it, and we enclosed it in hot boric-acid solution for several days, and finally I was able to amputate a couple of inches below the hip, and saved the man's life.

The parts above will become very emphysematous, even if the gangrene does not run up any farther, and still I believe if you give it time you can amputate with safety later on if the patient's life is preserved long enough so that you can do that.

We have certainly listened to an interesting paper.

DR. R. L. MURDY (Aberdeen): My experience has been limited to one case, and I report this simply because of a peculiar coincidence in connection with the case which Dr. Twining has reported. My case came from his town.

A brakeman was thrown from a train and had sustained a severe crushing injury to the forearm and the hand. He was left unconscious for a long time in the yards, and he lost a large amount of blood, owing to this severe injury and the time that he was left lying there, no one knowing where he was. He became very anemic from the great loss of blood, and an infection from the gas bacillus developed in about twenty-four hours, and spread very rapidly up the arm. He died in about two or three days after being admitted to the hospital. I have forgotten now whether we even amputated his arm, his condition was so serious, and it was evident that he was not going to survive. I hardly think now that we did amputate the arm, but I had not thought of this case until Dr. Twining called my attention to it, or I might have looked up the data and made a more intelligent report.

DR. JABEZ N. JACKSON (Kansas City, Mo.): If you will permit an outsider to speak, I will report an interesting case.

This fall one of the doctors living in Topeka, Kansas, had a son who developed a gas-bacillus infection in the forearm, which was amputated, and the gangrene continued to spread so far that it was deemed that a secondary operation would not be advisable. The doctor telephoned to Kansas City and asked my advice as to further treatment of the case.

Just a short time prior to this I had read of a method which was being employed by certain French surgeons depending on the fact that the gas-bacillus is anaërobic, and therefore to counteract the spread, which is in the cellular tissue, they resorted to going above the site of the gangrene and making incisions and tunnelling around the circumference of the limb in the superficial and deep fascia, and then pouring peroxide into the wound so as to fill it up with an oxygen-producing material; and they reported some very good results. When I read this I was very much impressed with this idea, and it occurred to me that perhaps, particularly in hospitals, where we had access to pure oxygen, this method could be simplified; and so I suggested this idea, simply to connect up an oxygen tank with an aspirating-needle, and then plunge the needle into the connective tissues of the deep fascia, and infiltrate the fascia all around a little above the site of the gangrene with pure oxygen. I do not know anything about the details of this case. I simply had a telephone report, but I know the interesting feature was that the boy made a perfect recovery, and as that is something new, I thought it might be well to report it. In this case the introduction of oxygen

into the tissues above the site of the gangrene proved efficacious because it stopped the spread.

There is only one case of gas-bacillus infection I have ever seen personally, and a very interesting feature about that case was, that it occurred in a patient without any obvious external wound; in other words, it was a small boy ten or twelve years of age who had sustained apparently a simple fracture of the forearm. I might, incidentally, say that the people were Christian Scientists, but they did call in a doctor. The boy had had a fracture once before which was attended by this same doctor. At the end of twenty-four hours the boy was delirious, with a rapid pulse, and the fingers were blue. I was called in in consultation on this account. When I got into the room the odor of gangrene was distinctly obvious. The dressings were removed. They had not been applied tightly, and I was satisfied that it was not gangrene from pressure. The doctor was uneasy lest the pressure had caused the gangrene. I noticed a crackling in the tissues, and concluded that we had a gas-bacillus infection to deal with. After some persuasion we finally succeeded in getting the boy admitted to a hospital, and what I did in this case was that inasmuch as the gangrene had spread up to the elbow, we simply split the arm wide open without anesthesia, split through the fascia down to relieve the pain, and after making these large splits to allow the escape of any infection there, I took a small, round, and long tube, with openings along the side, and connected the upper end of the tube with a fountain-syringe and ran hot water continuously over that arm. In this case, whether the hot water had the effect or whether the numerous incisions allowing the entrance of air into the wound did the work, in forty-eight hours the temperature subsided, the pulse came down, the delirium disappeared, and the spread of the infection was checked; and subsequently an amputation was made without any bad results.

These are the two cases that I have had, and it seemed to me that the two ideas in the treatment were widely opening the wound and allowing the access of

natural oxygen, and, particularly the other idea which I spoke of, the treatment of the tissues above the wound with pure oxygen.

DR. ROBERT FARR (Minneapolis): I am glad to say a few words with regard to this most interesting condition. We have seen in our work two cases. They illustrate certain points in the diagnosis which are worth bearing in mind. As the essayist mentioned, one of the important points about this condition with regard to diagnosis is the question of pain. I believe he did not emphasize it sufficiently. The pain is out of all proportion in these cases, I think, to what one might expect from the physical findings. One of the cases that I saw had a simple infection in the little finger from an abrasion received while he was working beneath a house, digging an excavation. The infection spread to the center of his hand, and the pain was so severe and his toxic symptoms so marked that I supposed I had some acute septic infection in the region of the carpal bones; but upon opening this I immediately struck denuded bone, and I presumed then that I had a case of acute osteomyelitis. The diagnosis was made accidentally. There was a little puffiness about the wrist, and we felt the crackling after we had made our incision (this was some four or five years ago), and I had not even in mind the gas-bacillus. Upon feeling the wrist we felt a little crackling, and made the diagnosis, and opened the arm up very widely. The man improved for twenty-four hours, and then developed an immense metastatic infection in both sides of his neck, and died within three days of the original infection.

The other case was that of a compound fracture of the thigh, which presented nothing unusual except the terrific pain this man complained of. Even in his delirium he screamed with pain all the time.

DR. TWining (closing): With reference to this obscure case which Dr. Farr reports: some cases have been reported in the winter time, even when the ground was covered with snow.



# THE JOURNAL-LANCET

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## DEATHS FROM PNEUMONIA

During the past few weeks there has been a decided increase in the number of cases of pneumonia in practically all parts of the country; and quite naturally a decided increase in the number of deaths therefrom. Minneapolis alone had seventy-eight deaths in January, and this is probably a fair index of the proportion of deaths through the rest of the country. It is noted in the *Journal of the American Medical Association* that the deaths among physicians have shown a large quota of pneumonias. The possibilities are that this rate will be kept up for several weeks, or at least until the influenza or la grippe epidemic has passed, taking its score among those who are unprepared.

A commercial paper published in Minneapolis has recently come out with a scathing and ill-timed editorial on the "failure of doctors in pneumonia," and suggesting in its analysis that it was rather strange that so many prominent people had recently died of pneumonia, and also suggesting that, under the old name of "inflammation of the lungs," the death-rate was very small. It asks the question, "Is the present generation so much weaker, or is the modern treatment for pneumonia by the regular physi-

cians at fault?" Evidently, the editorial was written by some man who was an anti-medicine or an anti-physician man, and it reminds us of the old tirades that were written by the League of Medical Freedom when it was on earth. For instance, it says that "the bondage to the doctor of the great majority of people is appalling," and that the doctors are not satisfied with their present "stranglehold," but are working, in season and out, to strengthen their grip by means of a Federal Board of Health. It suggests, further, that the doctors are not using good judgment in the care of their pneumonic cases, and it urges as a remedy that the moment a man is found suffering from a lung congestion he should have massage and hot applications. The editorial goes further, and suggests that a good osteopath or a skilled masseur should be called at once, as they can almost in every instance relieve any case of inflammation of the lungs or almost any other congestion. Of course, such ignorance may be expected from men who are not informed in medicine, and particularly those who know nothing of the causes of pneumonia.

Pneumonia is recognized by all physicians as a self-limiting disease due to an infection from without. The character of the pneumonia varies with the form of infection,—for instance, lobar pneumonia is brought about by a toxemia of varying intensity, accompanied by a fever, and microscopically there are found numerous pneumococci, that is, a specific bacillus, which has been recognized by Fraenkel and other bacteriologists. In the lobular form, a pneumonia infection may be of a mixed type, containing germs commonly causing influenza. We may also find pneumococci or diphtheria bacilli,—that is to say, there may be a number of cocci of this sort which cause an inflammation of the lungs, and from this toxic condition there may be secondary infective processes.

Now, the death or recovery from pneumonia depends upon many conditions, especially upon the power of resistance in the individual; and it is a well-accepted theory that no two individuals are alike in this respect, every man having his own peculiarities, and perhaps his own individual diseases, which may have lowered his power of resistance, and consequently rendered him a bad subject for pneumonia. Pneumonia is commonly supposed to attack those who have been previously well. Perhaps that is true in a sense, but these subjects have within them some defect in vigor or vitality that does not make them immune.

The majority of men, however, who suffer with, and die from, acute pneumonia, have some arterial or vascular disorder that may or may not have been recognized, such as heart weakness, kidney instability, overstrain which have brought about not only a nerve but a muscular weakness, chronic alcoholism, chronic rheumatism, and other infective diseases, and perhaps many other conditions which are not fully appreciated by the individual or even by his physician. Consequently, the man who advises massage for pneumonia indiscriminately, may be giving very bad advice.

It is true that our grandfathers or grandmothers used to treat pneumonia by calomel, castor oil, hot poultices, and pneumonia-jackets; but they played only a small part in the recovery from pneumonia. It was the man and his power of resistance that brought him safely through the attacks. It has been well established that pneumonia may be treated almost in the open; patients are fed with fresh air, sponged with cold water, and wear light clothing, and they have come through the ordeal in much better condition and in shorter time than by even the old-fashioned method or by the purely medicinal managements. It is not the medicine, or the method of treatment that should be criticized. Criticism can extend only to those conditions which are widespread,—hurry, worry, overwork, indulgence, and mismanagement of the body, which reduce the resisting power of the individual.

It is to be hoped that this commercial paper will take better stock of its information, and get something more accurate, even though it comes from medical sources. The insinuation that doctors are holding on to people for a fee is the basest kind of ingratitude when it is known that physicians are giving their time and their efforts to control or to suppress communicable diseases, and doing so with little or no compensation. Of course, there are doctors who get fees, and good fees, but those fees are paid by people who can afford it, and who really prefer to pay fees. When a layman begins to mix up his knowledge of medicine and people, he is treading on dangerous ground.

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#### THE EFFICIENCY AND ECONOMY COMMISSION

A year ago the bill introduced into the Minnesota legislature by the State Efficiency and Economy Commission was so unsatisfactory to the members of the House and Senate that it was rejected; but by agreement, a new commission

was appointed by the Governor and the Speaker of the House. The new commission, composed of a smaller body of men, has had several hearings, and they have taken up the various departments, one by one, hoping to arrive at some reasonable conclusions. The Hon. L. C. Spooner arranged for last week's program; and the chairman and members of the Legislative Committee of the Minnesota State Medical Association appeared to represent the twenty-five hundred physicians in Minnesota. The committee devoted its energies to the needs of the State Board of Health and the Board of Medical Examiners.

The same old problem has arisen, Shall the Commission reduce the number of state boards by amalgamating boards that may affiliate, one with the other, under different departments? It soon developed, as was found in the previous case of the Commission, that every board felt it was doing its work systematically and thoroughly, and that there was no need of a change.

Relative to the State Board of Health, the members of the Board and the Committee from the State Medical Association feel that there should be no change in the personnel, the manner of appointment of the Board, and the selection of its executive officer, and, too, to further the interests of the State, it is believed that the State Board of Health should have the same recognition that is granted to the Department of Education,—that is, that the State Board of Health should be a department and not a bureau under any other department.

The problems of the State Board of Health are so great and so peculiar and so different from those of other state boards, that it would be retrogressive to subordinate the Board of Health to a Department of Public Welfare. The members of the Committee believe that anything that would suggest a political aspect in the State Board of Health would be demoralizing; consequently, the proposition that the executive officer be appointed by the governor and called a commissioner of health was objected to, on the ground of probable and frequent political changes. Occasionally our governors are granted a second term, making four years altogether in office. Not uncommonly the governor has but one term, two years; and if he were permitted to appoint a new commissioner of health each time, the effect would soon be felt throughout the state.

It is hardly probable that Minnesota or its political bodies would appreciate the necessity of having a trained man of long experience as an executive officer. Discussion brought out the fact that

the cities of St. Paul and Minneapolis had frequent changes in their commissioners of health and that they were dependent upon the city councils for their appointment; and the natural inference is, and experience shows, that the commissioners of health have been handicapped by political antagonism, political changes, and intermeddling of men who really are not experienced in public-health work. The Committee went on record, and its record has been taken down in stenographic form, so that the members of the Commission will have a chance to look over and discuss the various points made by the Legislative Committee, and in due course of time this discussion may be printed for the benefit of the medical men in the state.

The State Board of Health and the State Board of Examiners need the backing of the medical profession, and if every physician in the state would confer with his local representative or his senator, it would make the problems of the State Board of Health much easier. It was argued that the State Board of Medical Examiners should be retained in its present form, because Minnesota stands out prominently as a state in which incompetent men have been prevented from being licensed to practice, and this is due to the conscientious work of the State Board of Medical Examiners. Minnesota is, in point of numbers, considered by the medical profession in the United States as number one in point of efficiency; that is to say, the average man in Minnesota is competent to practise medicine; and Minnesota has fewer quacks and a smaller number of irregulars than any other state in the Union. This argument alone ought to convince the Commission that the Board of Medical Examiners is doing good work, and has done good work in the past. Minnesota has always been recognized as a leading state in medicine, and it is only within the past two years that the legal profession of Minnesota have awakened to the fact that they had their duty to perform like the medical men, and they have organized and appointed committees from the State Bar Association to prevent the irregular practitioner in law from carrying on a nefarious business, and this action is largely due to the attitude that medicine has assumed in Minnesota. The Commission, however, is composed of a body of intelligent men, who will look at their problems from a broad standpoint; but it is impossible for men of this type, mainly lawyers and business men, fully to appreciate the needs of public health.

They seem absolutely unable to appreciate one thing, and that is the Department of Vital Statistics. They object to the expense, and seemingly object to the division, on the ground that it is unnecessary. For some time Minnesota has tried to get into the registration states, that is, to fulfill the standards of the U. S. Census Department, and it has reached that point only within a comparatively short time, but, unless the importance of vital statistics is more fully recognized than heretofore, Minnesota will drop back again below a standard that has been set for them, and that it has set for itself. We appeal to all medical men to convince their representatives that vital statistics is a very important cog in the machinery of the state. It means accurate, valuable information at all times available, which is not infrequently of great public benefit; but to carry out the work means the expenditure of at least ten thousand dollars a year by the State Board of Health, and for several years the Finance Committee has cut the appropriation down to five thousand. The result is, that the extra five thousand has been carried by the general fund, which altogether is about fourteen thousand dollars. One can readily see how crippling it is to the general fund, and how inevitably it will cut into other divisions of the State Board of Health. The work of securing accurate and definite information in regard to births and deaths not infrequently takes a long time, and a great deal of correspondence. The Census Department in Washington will accept nothing but accurate statements, and the State Board of Health has demanded of all registrars and physicians that they make a full and complete return of deaths, and as far as possible make a complete return of births.

The primary fault perhaps lies with medical men, in that they themselves fail to understand the necessity of complete statistical records, and it was suggested by the Commission that perhaps a law could be formed compelling medical men to make a prompt return of deaths and births; but from experience in the Board of Health office, it was suggested that this move would be unwise and absolutely impossible to fulfill. Of course, medical men are not obliged by law to make these returns, but they are obliged by custom, and for the benefit of themselves and others, to fill out blanks and send them to their local registrars. If this was done, and done promptly, there would be less correspondence and fewer mistakes, and, naturally, a less amount of work in the Division



of Vital Statistics. But this dream state can hardly go on, for we as doctors are notoriously negligent about matters of state and political importance. It requires so little time to fill out a death or birth certificate that it would seem as if the attending physician could do it while he was getting ready to leave the house. He would then have the facts fresh in his mind, could secure the requisite data, and promptly send the certificate to the registrar. Doctors are notoriously poor correspondents, and they put aside this matter, thinking they can take care of it the following day, while, if they were businesslike in their work, they could dispose of it in a few minutes.

The Efficiency and Economy Commission is probably going to have a difficult time, and doubtless it will meet with a great deal of opposition in the next Legislature; but that is inevitably so in all new legislation, and particularly when it comes to a governmental problem, and THE JOURNAL-LANCET sincerely hopes that the Commission can get together, and get out a report for the Legislature that will prove wise and safe.

The following is taken from the January 14th issue of *Public Health Reports*:

#### LEGAL AND SOCIAL USES OF BIRTH REGISTRATION

The registration of a child's birth forms a legal record that is frequently useful and may be of the greatest importance. It establishes the date of birth and the child's parentage. It may be required to establish the child's age for attendance at public schools, or for permission to work in states where restrictions are placed on child labor; to show in courts of law whether a girl has reached the age of consent, or whether individuals have attained the age when they may marry without the parent's permission; to establish age in connection with the granting of pensions, military and jury duty, and voting. It may be important in connection with the bequeathing and inheritance of property or to furnish acceptable evidence of genealogy, and, in fact may be important and useful in possible events too numerous to mention.

## CORRESPONDENCE

### COPENHAGEN SNUFF

TO THE EDITOR:

At the annual meeting of the Southern Minnesota Medical Association in 1914, Dr. J. H. Hiel-scher, of Mankato, presented a very able article on the pernicious effects of "Copenhagen Snuff."

The paper at the time was discussed by some members who had some observation on the use of this snuff, and all of the comments were unfavorable. North Dakota has even taken official action in reference to this snuff, and by an act of the legislature, has prohibited its use.

In THE JOURNAL-LANCET of January 15, 1916, I have read with interest an article by E. L. Crispin, M. D., of the Mayo Clinic on the same subject. Dr. Crispin says the evil effects of the snuff habit have been creeping into this country for the last few years. After speaking of snuff in general, he says "There is another form of snuff, however, the effects of which are far in excess of that seen in the immoderate use of tobacco, that must contain ingredients other than the usual mixture of pulverized tobacco. This snuff is the so-called 'Copenhagen,' which is sold and used extensively in the middle and northwestern states by large numbers of foreigners, as well as American adults and youths."

I wish to emphasize the words "The effects of which are far in excess of that seen in the immoderate use of tobacco." The inference must be that Copenhagen snuff contains something that is not tobacco—something more pernicious than the immoderate use of tobacco. The writer wishes to be understood that he does not advocate or palliate the use of Copenhagen or any other snuff. He believes the use of any snuff a pernicious habit, but the question arises, Is Copenhagen snuff more pernicious than any other snuff?

The writer is a member of the Minnesota state senate, and was at the time of reading Dr. Hiel-scher's article at the meeting of the Southern Minnesota Medical Association, to which reference has been made. The writer was also chairman of the committee on Public Health during the 1915 session of the legislature, and as chairman took great interest in the bill presented to the legislature prohibiting the use of Copenhagen snuff. Dr. Hilbert, of Melrose, also a member of the senate, and of the committee on Public Health, was equally interested with me in the passage of the bill.

When the bill was presented to our committee, and a notice of a hearing was given, those interested in the manufacture and sale of Copenhagen snuff were present, and strenuously opposed the passage of the bill on the ground that it was class legislation. Said they, "If the state prohibits the use of Copenhagen snuff, it must prohibit the use of tobacco, for Copenhagen snuff is simply pure

tobacco of a good quality." In order to be fair to all concerned the health committee postponed action on the bill until we ourselves should institute such an investigation as would determine the quality of said snuff. We then obtained a report from the United States chemist, at Washington, which stated, in substance, that Copenhagen snuff was pure tobacco, and in no way adulterated. We then visited the State Chemist, Mr. Julius Hortvet, a very competent chemist, told him what we wanted, and asked him to take as much time as he needed to make a thorough chemical examination. He visited several different tobacco stores where this snuff was on sale, and secured as many samples. These he purchased as any user of snuff would do, the dealer not knowing him, or suspecting the use he wished to make of it. This examination extended over a period of more than two weeks, the chemist having examined several of the samples. The examination showed Copenhagen snuff to be composed of a good quality of tobacco, with no adulteration of any kind. In the face of this evidence our committee could but recommend the indefinite postponement of the bill.

With the testimony of so many competent physicians as to the pernicious effects of Copenhagen snuff, it is not easy for me to believe that it contains no injurious substance other than tobacco, yet where is the proof that it does?

I wish that the profession might make more accurate chemical records of the cases coming under medical observation between this and the meeting of the next legislature, so that, if the bill prohibiting the use of Copenhagen snuff is again introduced, those who would like to see its use prohibited would be able to present conclusive evidence that the effect of the use of this snuff is more pernicious than that of other brands of snuff on the market. J. W. ANDREWS, M. D.

Mankato, Minn., February 1, 1916.

## REPORTS OF SOCIETIES

### BROWN-REDWOOD SOCIETY

The Society held its annual meeting at New Ulm on January 5th.

Papers were read as follows: "Septic Kidney," by Dr. D. F. Gray; "Diseases of the Blood," by Dr. O. J. Sifert; "Spasmophilia," by Dr. J. P. Sedgwick, of Minneapolis.

Officers were elected as follows: President, Dr. Earl Jamieson, Walnut Grove; vice-presi-

dent, Dr. M. Sundt, Hanska; secretary-treasurer, Dr. G. F. Reineke, New Ulm; board of censors for three years, J. C. Rothenburg, Springfield; delegate, Dr. M. C. Piper, Sanborn; alternate, Dr. O. C. Strickler, New Ulm.

G. F. REINEKE, M. D.,  
Secretary.

### THE CARLTON COUNTY SOCIETY

The Society held its annual meeting at Cloquet on December 29th, and the meeting was given over to the election of officers, resulting as follows: President, Dr. James Fleming, Cloquet; vice-president, Dr. S. S. Shannon, Barnum; secretary-treasurer, Dr. Frank Raiter, Cloquet; delegate, Dr. S. S. Shannon.

### UPPER MISSISSIPPI SOCIETY

The Society held its annual meeting in January at Brainerd.

Dr. H. P. Ritchie, of St. Paul, gave a lecture on gastric diagnosis. Dr. E. L. Tuohy, of Duluth, read a paper on "Jaundice" and Dr. N. L. Linnemann, of Duluth, read a paper on "Genito-urinary Tuberculosis."

Clinical work was presented by Drs. A. W. Ide and J. A. Thabes, of Brainerd.

### NORTHWESTERN ASSOCIATION OF NORTH DAKOTA

The Association held its annual meeting at Minot, N. D., on January 18th. An elaborate banquet was served, and the meeting was confined to the election of officers for 1916. The following were elected:

President, Dr. L. H. Kermott; vice-president, Dr. Fred Ewing; secretary-treasurer, Dr. F. A. Brugman; censors, Drs. E. M. Ramson and J. E. Pence; delegates, Drs. A. J. McCannel and A. Carr.

### THE PARK REGION SOCIETY

The Society held its annual meeting at Fergus Falls on January 12th.

The program consisted of a report of a case of perforating ulcers of the large bowel, by Dr. W. H. Hengstler, Osakis; a paper on "The County Sanatorium and Its Present System of Management," by Dr. O. M. Haugen, Fergus Falls; and a paper on "The Gastro-intestinal Aspects of X-Ray Diagnosis," by Dr. Hugh Wilson, Minneapolis.

Officers for 1916 were elected as follows: President, Dr. W. W. Drought, Fergus Falls; vice-president; Dr. C. O. Estrem, Fergus Falls;

secretary-treasurer, Dr. A. Mason Randall, Ashby; delegate, Dr. A. Mason Randall, Ashby; alternate, Dr. A. D. Haskell, Alexandria.

A. MASON RANDALL, M. D.,  
Secretary.

#### STEARNS-BENTON COUNTY SOCIETY

A quarterly meeting of the Society was held in St. Cloud on January 20th, with twelve members present.

Papers were as follows: "Poliomyelitis with Report of Cases," by Dr. August Kuhlmann, Melrose; "A Talk on Serum, Sero-Bacterins, Bacterin Treatment and Failures," by A. B. Moulton of Parke, Davis & Co., Detroit, Mich.

A thorough discussion followed.

Dr. Claude M. Campbell, of Melrose, and Dr. Frederick A. Douglas, of St. Cloud, have been elected members; and Dr. A. W. Eckstein has been dropped from the roll of membership.

J. C. BOEHM, M. D.,  
Secretary.

#### GRAND FORKS (N. D.) DISTRICT SOCIETY

The annual meeting of the Grand Forks District Medical Society was held January 5th. The event was celebrated with a banquet at the Hotel Fredrick, and was largely attended.

The Society is in a healthy and flourishing condition, and from the enthusiasm displayed 1916 should be the banner year of its existence. A cash prize of twenty-five dollars will be given by the Society to the University School of Medicine, to be awarded annually to the student making the highest average during his two years of medical work given by the University.

The following officers were elected: President, Dr. H. E. French; vice-president, Dr. Thos. Mulligan; secretary, Dr. H. G. Woutat; treasurer, Dr. C. S. Marsden; censor, Dr. A. F. Bratrud; delegate to State Association, Dr. L. D. Bristol.

DR. H. G. WOUTAT, M. D.,  
Secretary.

## NEWS ITEMS

Dr. D. F. Dumas, formerly of Cass Lake, has located in Deer River.

Dr. F. O. Kaps, of Britton, S. D., is spending the winter in New Orleans.

Dr. C. F. Morseman, of Hibbing, has returned from a two months visit in Florida.

The Minnesota State Medical Association will meet in Minneapolis October 11 to 13.

Dr. A. J. Wentworth, of Mankato, was married January 13th to Miss Lydia Johnson, of Minneapolis.

Dr. A. L. Laliberte, a graduate of Laval University, Quebec, died at his home in Minneapolis February 5th.

The annual meeting of the Montana State Medical Association will be held in Miles City July 10 to 14 inclusive.

Dr. J. B. Vaughn, of Castlewood, S. D., was married to Miss Lula Belle Simpson, of Williamsburg, Mo., January 27th.

Dr. Wm. E. Ground, of Superior, Wis., after two or three years of semi-invalidism, has resumed practice in that city, having completely recovered his health.

Dr. Paul W. Giessler has completed a year's work at the Minnesota State Hospital for Indigent Crippled and Deformed Children, and has gone to Boston to continue his work in orthopedic surgery.

Dr. Archibald MacLaren, of St. Paul, has assumed the scholarship of \$50 a year given to the best student in biology at Macalester College. Dr. W. J. Mayo, of Rochester, has formerly given the scholarship.

Drs. Theodore Bratrud, of Warren, and S. H. Boyer, of Duluth, have been appointed to the State Board of Medical Examiners to succeed Drs. Charles Bolsta, of Ortonville, and F. B. Hicks, of Grand Marais.

Dr. H. M. Bracken, Secretary of the Minnesota State Board of Health, spoke before the Council on Health and Public Instruction of the American Medical Association at its meeting in Chicago the first of this month.

At the annual meeting of the Cass County (North Dakota) Medical Society, held in Bismark, Dr. Nels Trommes, of Fargo, was elected president; Dr. R. E. Weible, of Fargo, vice-president; and Dr. J. F. Hanna, of Fargo, secretary.

Drs. Wm. J. Taylor and Geo. F. Schmidt, of Pipestone, have rented and rearranged the Ashton residence as a private eight-bed hospital for the medical and surgical care of the sick. Miss Cornelia Fontaine, of Sioux Falls, is the nurse in charge.

The United Church Hospital Association dedicated the last of January the new Fairview Hos-



pital at Minneapolis. At present the hospital contains 90 beds, but when plans under way are completed it will accommodate 150 patients. Everything connected with the building is constructed upon the latest ideas in modern hospital construction.

The Minnesota Public Health Association will render any assistance within its power to the physicians of the various communities of the state taking part in the Baby Week campaign, March 4 to 11. It can furnish literature and supply data regarding infantile mortality for the various communities; and anything else it can do, will be cheerfully done.

### PHYSICIANS LICENSED (JAN. 19, 1916) TO PRACTICE IN MINNESOTA

#### BY EXAMINATION

Adson, Alfred W. . . . .U. of Pennsylvania, 1914  
Cooperman, Harold O. . . .U. of St. Louis, 1915  
Graham, Reginald D.  
.....Chicago Med. & Surg., 1915  
Masson, James C. . . . .Toronto, 1906  
Townsend, De Wayne. . . . .Harvard, 1915

#### BY RECIPROCITY

Birkelo, Carl C. . . . .Rush, 1914  
Black, Grover C. . . .Washington U. St. Louis, 1908  
Bossingham, Ottmer N. . . . .U. of Iowa, 1898  
Davis, Irwin G. . . . .Rush, 1914  
Fraker, Samuel R. . . . .P. & S., Baltimore, 1904  
Frise, Dudley C. . . . .U. of Illinois, 1915  
Riley, William H. . . . .Rush, 1912  
Ryan, William J. . . . .Marquette, 1913  
Sanford, Arthur H. . . . .Northwestern, 1907  
Turner, Joseph R. . . . .Johns Hopkins, 1913  
Watson, John D. . . . .Western University, 1907

### ASSISTANT WANTED

I desire an assistant in my eye, ear, nose, and throat practice. A good proposition for the right party. Address 295, care of this office.

### POSITION WANTED

A graduate nurse with previous experience desires a position in a physician's office. Can furnish good references. Address 300, care of this office.

### HOUSE FOR SALE

A physician's modern residence and office in Minneapolis. Good location. Occupied by doctor for 10 years. Address 303, care of this office.

### POSITION WANTED

An experienced young lady desires position in a physician's or dentist's office. Can furnish good references. Address 307, care of this office.

### ASSISTANT WANTED

Surgical assistant in a German Protestant hospital in the Northwest. Must have served one or more years first class internship; live in hospital; good salary. Address 304, care of this office.

### OFFICE FOR RENT

A nice large office in a modern building located at the corner of 27th Ave. So. and Lake St., Minneapolis. This is a transfer point and is very busy. Apply at the Ha Ha Candy store at above address.

### PRACTICE FOR SALE

Will sell or rent my property and practice of \$3,000 to \$4,000 per year in a good railroad town in Minnesota. Nearest competition 9 to 13 miles. Property consists of a good house, garage, and a good office. Four mails a day. Address 306, care of this office.

### EXCHANGE—LAND FOR AUTOMOBILE

I have 120 acres of choice hardwood timber land in southern Cass County, Minnesota, on a state road and near beautiful lakes to exchange for first-class five-passenger car of late model. Value of land \$16 per acre; mortgaged for \$750 at 7%. Mortgage held by bank. Address G. M. Sewall, M. D., Cuyuna, Minn.

### WANTED, LOCUM TENENCY

Beginning March 1st, for any length of time not to exceed six months, by regular physician, thirty-two years of age, 1914 graduate; completed an eighteen-months' internship at a large county hospital Dec. 10th. Can give best of reference. Am doing locum tenency work now. Prefer a small town with little or no competition. Address 298, care of this office.

### FOR SALE

South Dakota practice of \$3,000 to \$3,500 yearly, in best section (southeastern) of state. Town 500, excellent business establishments, school, churches, electric lights, etc. Farmers prosperous; collections always good, one competitor; outside competition 22-18-14-12 miles. Good roads. Price, \$500.00 cash, includes drugs, considerable equipment and practice. Immediate possession. Address 302, care of this office.

### PRACTICE FOR SALE

County seat town of 600 population in western South Dakota; railroad division point; city water and electric lights. Practice will average better than \$3,500 per year from the start; no competition. This place open now as I have left. You will have to act quickly as Railway Co. have to have a surgeon at this point. Wish to sell office fixtures for \$200 and turn office lease over to successor. You can step right into this office and go to work at once. Am going east at once so there is no time to lose. Address 305, care of this office.

### DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1906	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	1															
Albert Lea	4,500	6,192	7	1	1													
Alexandria	2,681	3,001	3															
Anoka	3,769	3,972	1															
Austin	5,474	6,960	9															
Barnesville	1,326	1,353	2															
Bemidji	2,183	5,099	5			1												
Benson	1,525	1,677	0															
Blue Earth	2,900	2,319	1															
Brainerd	7,524	8,526	11															
Breckenridge	1,282	1,840	6	1														
Canby	1,100	1,528	1															
Cannon Falls	1,239	1,385	3															
Chaska	2,165	2,050	2															
Chatfield	1,426	1,226	1															
Cloquet	3,074	7,031	9			1												
Crookston	5,359	7,559	7	1														
Dawson	962	1,318	0															
Detroit	2,060	2,807	4															
Duluth	52,968	78,466	71	4	1	9	0	0	0	0	1	0	0	3	3	6	1	2
East Grand Forks	2,077	2,533	2															
Ely	3,572	3,572	3															
Eveleth	2,752	7,036	6			1												
Fairmont	3,440	2,958	5	1	1													
Faribault	7,868	9,001	6								1							
Fergus Falls	6,072	6,887	10			1												
Glencoe	1,788	1,788	0															
Glenwood	1,116	2,161	1															
Granite Falls	1,454	1,454	5			1												
Hastings	3,811	3,983	0															
Hutchinson	2,495	2,368	2			1												
International Falls		1,487	5			1												
Jordan	1,270	1,151	1															
Lake City	3,142	3,142	3															
Le Sueur	1,937	1,755	1															
Little Falls	5,774	6,078	4															
Luverne	2,223	2,540	7															
Madison	1,336	1,811	3															
Mankato	10,559	10,365	13		1													
Marshall	2,088	2,152	1															
Melrose	2,591	2,591	1															
Minneapolis	20,718	201,408	320	26	8	28	8	1	1	0	1	0	0	3	6	22	0	23
Montevideo	2,146	3,056	2															
Montgomery	979	1,267	2															
Moorhead	3,730	4,840	8			1												
Morris	1,934	1,685	1															
New Prague	1,228	1,551	1															
New Ulm	5,403	5,648	10			1												
Northfield	3,210	3,215	2															
Ontonville	1,247	1,774	1							1		1						
Owatonna	5,561	5,658	13			1												
Pipestone	2,536	2,475	2															
Red Lake Falls	1,666	1,666	1															
Red Wing	7,525	9,048	16	1		1												
Redwood Falls	1,661	1,666	1															
Renville	1,075	1,182	1															
Rochester	6,843	7,844	32		1													
Rushford	1,100	1,011	1															
St. Charles	1,304	1,159	1															
St. Cloud	8,663	10,600	7															
St. James	2,102	2,102	0															
St. Paul	163,632	214,744	228	17	3	17	1	1	0	0	3	0	1	0	1	15	0	18
St. Peter	4,302	4,176	4				1											
Sauk Centre	2,154	2,154	3	1														
Shakopee	2,046	2,302	1															
Sleepy Eye	2,046	2,247	1															
South St. Paul	2,322	4,510	0															
Staples	1,504	2,558	4			1												
Stillwater	12,318	10,198	6		1													
Thief River Falls	1,819	3,174	1			1												
Tower	1,111	1,111	0															
Tracy	1,911	1,826	0															
Two Harbors	3,278	4,990	1															
Virginia	2,962	10,473	9			1												
Wabasha	2,622	2,622	7															
Warren	1,276	1,613	3															
Waseca	3,103	3,054	1															
Waterville	1,260	1,273	4			1												
West St. Paul	1,830	2,660	1															
Willmar	3,409	4,135	5															
Winona	19,714	18,583	21	5		1												
Winthrop	813	1,043	2					2										
Worthington	2,386	2,386	2															

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyneuritis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	2			1												1
Aitkin	1,719	1,633	0															
Akeley			0															
Appleton	1,184	1,221	1															
Belle Plaine	1,121	1,204	1															
Biwabik		1,690	2														1	
Bovey		1,377	1															
Browns Valley	721	1,058	*												1			
Buffalo	1,040	1,227	4	1														
Caledonia	1,175	1,372	2	1														
Cass Lake	546	2,011	2															
Chisholm		1,684	5			3												
Coleraine		1,613	1															
Delano	967	1,031	2														1	
Farmington	733	1,024	1															
Fosston	864	1,055	1															
Frazee	1,000	1,645	2															
Grand Rapids	1,428	2,239	0														1	
Hibbing	2,481	8,832	10			1	1									3		
Jackson	1,756	1,907	6															1
Janesville	1,254	1,173	1															1
Kenyon	1,202	1,237	1															
Lake Crystal	1,215	1,038	0															
Litchfield	2,280	2,333	2												1			
Long Prairie	1,385	1,250	3														1	
Madelia	1,272	1,273	0															1
Millaca	1,204	1,102	0															
Mountain Lake	959	1,081	1															
Nashwauk		2,080	0															
North Mankato	939	1,279	1			1												
North St. Paul	1,110	1,404	1															
Osakis	917	1,013	0															
Park Rapids	1,313	1,850	0															
Pelican Rapids	1,033	1,019	1															
Perham	1,182	1,376	3		1	1												
Pine City	993	1,258	1															
Plainview	1,038	1,175	0															
Preston	1,278	1,193	3	1													1	
Princeton	1,319	1,555	0															
St. Louis Park	1,325	1,743	3															1
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	0															
South Stillwater	1,422	1,343	2															
Springfield	1,511	1,482	2															
Spring Valley	1,770	1,817	2			1												
Wadena	1,520	1,820	1			1												
Wells	2,017	1,755	1															
West Minneapolis	2,250	3,022	2							1								
Wheaton	1,132	1,300	0															
White Bear Lake	1,288	1,505	3															
Windom	1,944	1,749	2															
Winnebago City	1,816	2,555	2															
Zumbrota	1,119	1,138	1			1												
STATE INSTITUTIONS																		
Anoka, Asylum			1															
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			4		1													1
Fergus Falls, Hospital for Insane			7			1												
Hastings, Asylum			1															
Minneapolis, Soldiers' Home			5															
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			13	1														
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			7															
St. Cloud, State Reformatory			0															
Stillwater, State Prison			2	1		1												
OTHER PARTS OF STATE			696	48	12	33	4	10	0	0	7	1	0	5	14	56	6	60
Total for state			1764	111	32	114	17	13	3	0	16	1	1	20	35	134	8	135

\*No report received. REGISTRAR not doing his duty.  
152 stillbirths not included in above totals.



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In this brand, all puny, starved grains are discarded. We pick out the ripe and plump. We get, on the average, but ten pounds per bushel.

In this way Quaker Oats has won millions of oat lovers. It is the favorite oat food the world over.



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*Using Queen Grains Only*

To insure perfect cooking we supply the aluminum cooker. It is made to our order. Our offer is in every package, and 700,000 homes have accepted it so far.

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*Regular Package, 10c*  
*Except in Far West and South*

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Chicago

(1172)

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no palate.

Made from pure Norwegian  
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after a scientific formula  
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tible.

Hydroleine  
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of physicians  
because — thor-  
oughly dependable, without  
medicinal admixture—it  
can be used in *every* case in  
which cod-liver oil is indi-  
cated. Sold by druggists.

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### Live virulent organisms re- tard immunization.

Dead or devitalized organisms rapidly produce immune bodies. PROPHYLACTIC IMMUNIZATION has demonstrated this fact; Therapeutic Inoculation is doing so in ACUTE and CHRONIC INFECTIONS. Greater and more rapid immunity can be established with a vaccine than from an infection.

If you have a case of ACUTE INFECTION give it an injection of VACCINE in some healthy tissue which will be stimulated without deleterious results to antibody production.

We have had extensive experience with severe cases and may be of service to you.

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We send gratis, upon request, sterile containers and complete instructions, for the collection of all specimens, such as urine, blood, tissue, stomach contents, smears, culture media for autogenous vaccines, etc.

Reports from this laboratory are ACCURATE, RELIABLE and DEPENDABLE.

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Very dependable and complete reports.  
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**Wassermann Test . . \$5.00**

We do the classical test. Any of the  
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**Complement Fixation Test  
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We use a polyvalent antigen.

**Autogenous Vaccines . \$5.00**

with the *exciting organism* isolated and  
identified. Cultured *aerobically* and  
*anaerobically*. Put up in ampules, in  
graduated doses, or in a single 20 c.c.  
container.

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New York,  
18 East 41st Street

## PUBLISHER'S DEPARTMENT

### MELLIN'S FOOD

A "Mellin's Baby" is a joy forever, and such babies are a part—an essential part—of magazine literature, for often the best reading and illustrations of our magazines are found in the advertising pages; and why not? The story of a baby is a human story. The story of a Mellin's baby, told in either *his* or *her* rosy, chubby cheeks, appeals very strongly to every grown-up.

Mellin's Food produces such babies because it is a *scientific product*. This tells the story, and all of it.

### HEPCO FLOUR FOR DIABETICS

The Health Products Company, of Waukesha, Wis., claim that their Hepco Flour is a starch-poor, palatable cereal, and that it is far more desirable from the healthful point of view for diabetics, but that it is relished by many who will not eat other cereals, except under self-compulsion.

The Council on Pharmacy of the A. M. A. has approved it, which is a guarantee that the company makes no exaggerated or false claims in its literature or on its packages.

### THE WALMAN OPTICAL COMPANY

The above company, under the management of Mr. J. A. L. Walman, who is well and most favorably known to the medical profession of Minneapolis, is conducting an *exclusively* wholesale business as manufacturers and importers of all lines of optical goods and instruments, selling direct to physicians who are entitled to wholesale prices. Such a house has a distinctive field; and the physicians of the Northwest may consider themselves fortunate in having a manufacturing and jobbing establishment in their midst to meet their wants, and to furnish them prices that are right, and are not given to the public.

### McINTOSH BATTERY & OPTICAL COMPANY

The average physician knows about as much about the electrical appliances he uses in his office as the average layman knows about the kilowatt-hours which measure the electricity that furnishes him light. Moreover, the physician does not need to know the details about the manufacture of such apparatus. He wants service, and the best possible service; and he is willing to pay for it when assured that he is getting it.

The reputation of the above-named company is the assurance that means something; and our readers will find that whatever comes from their works is high-grade and will give perfect satisfaction; and only such apparatus is worth buying, for a physician has no time to spend upon poor and inefficient appliances.

### MUDCURA

Dr. H. P. Fischer, the medical director and manager of Mudcura, of Shakopee, Minn., has built up a sulphur mud and bath sanitarium that is conducted along right lines. He first gave it the right kind of medical supervision, and then turned his attention to the comforts of his patients.

During the past year, by the addition of several cottages, the capacity of the Sanitarium has been increased

to one hundred patients. A new dairy-barn provides the home with an ample supply of the best grade of milk, and the by-products of veal, pork, and eggs; and in the season fresh vegetables are raised in the garden of the Sanitarium grounds.

For the popular and efficacious sulphur and mud baths Mudcura is unsurpassed, and its management is unexcelled for patients who seek the best treatment with the comforts of home at reasonable prices.

### THE FIRST AND SECURITY NATIONAL BANK OF MINNEAPOLIS

In the consolidation of the First and the Security National Banks of Minneapolis, which occurred some months ago, the Northwest gains a financial institution that will add largely to its prosperity, for a rapidly growing country is handicapped without the aid of great and resourceful banks.

Notwithstanding the new bank's great resources, the smallest customer receives the most courteous and the most business-like treatment. His legitimate needs are met in this bank as fully and as freely as the needs of the large customer, for he, in his large numbers, is a very essential factor in the business of a prosperous and growing section like the Northwest.

No physician need hesitate to open an account with the First and Security Bank of Minneapolis, and to ask it for counsel in any financial matter.

### SPEED LAWS IN CHEMICALS

Speed laws apply to drugs, as well as to trains and automobiles. Especially the speed laws from the side of the scientist, rather than from the side of the police. The value and results of drugs and chemicals often depend upon their speed of action, to a very large degree, and the study of speed of action of different agents producing the same desired end-results is interesting and suggestive. One of the best examples is that of a chemical action produced by baking powders in the presence of moisture in the process of baking. The desired end-product is carbon dioxide gas. The time at which it is liberated makes all the difference between success and failure. Powders which rely upon tartaric acid alone, or alum alone, as the acid factor, and those in which the mixture of acid bases is improperly balanced, release their carbon dioxide gas either too early or too late. A properly compounded combination powder, such as the Calumet Baking Powder, develops a sufficient quantity of gas in the cold to materially lighten the mix, so that there is a sufficient surface for the heat to act upon, and at the same time the gluten is not so distended as to cause danger of the gas escaping and the cake falling.

### NEW MALT TONIC MANUFACTURED IN MINNEAPOLIS

It is generally known that Dr. Peter Lauritzen commenced the manufacture of Malt Tonic and a non-intoxicating health table malt, some years ago, but later left the company which he had organized and which carried his name for many years, "The Lauritzen Malt Co."

Dr. Lauritzen is now President of the well-known concern, "The Purity Brewing Company," of Minneapolis, which he organized in 1907. Due to the many inquiries and demands from Dr. Lauritzen's old customers, this company has now organized a new department, namely, "The Purity Malt Tonic Company," for



the making of Purity Malt Tonic, a product pure and healthful, which is to rank among the very best of its kind in the country. It is prepared under the personal supervision of Dr. Lauritzen, who gives the physicians and the public a guarantee of its absolute purity and superior quality.

THE JOURNAL-LANCET is pleased to recommend this home product to the medical profession, and calls attention to the company's advertisement elsewhere in this issue.

#### SOME NEW AND IMPORTANT IODINE PREPARATIONS

It is not too much to say that in recent years iodine has become an indispensable agent in skin and wound disinfection, and this in spite of the fact that the tincture of iodine commonly used for this purpose has a number of manifest disadvantages. To mention a few of these,—it is decidedly irritating, only slightly penetrating, produces disagreeable stains and discolors or injures instruments.

For these reasons the introduction of a new iodine preparation that not only obviates these objectionable features, but possesses many desirable qualities of its own, will be of general interest. This preparation, known as *Iocamfen*, is based on the iodine solvent action of the liquid trituration product of camphor and phenol under suitable conditions and contains 10 per cent free iodine. Comparative tests of preparations of this character and tincture of iodine in many field and base



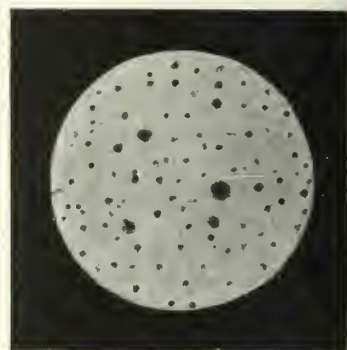
Microscopic view (x250) of *Unguentum Iodi*, U. S. P. prepared by prominent Pharmacist,  $\frac{3}{5}$  actual size.

hospitals, during the present European war, have conclusively demonstrated its superior disinfecting power due to its greater penetrating ability and its greater freedom from irritation.

*Iocamfen* Ointment, containing 5 per cent free iodine, will also be found to be much more efficient as well as agreeable than the ointment of iodine of the U. S. P. or its substitutes. Microscopical examinations show that in the official and other ointments of iodine on the market the iodine is not perfectly incorporated in the base, while in *Iocamfen* ointment the iodine content is in a state of perfect solution. This fact alone explains why this new iodine ointment possesses such marked penetrating power. Moreover, its other constituents, camphor and phenol, increase its disinfectant action and render it distinctly analgesic.

The therapeutic indications for these products comprise all conditions in which the tincture or ointments of iodine are employed, such as disinfection of the skin and operative field, treatment of wounds, infective processes, burns, fistulas, ulcers, abscesses, parasitic affections of the skin, furuncles, glandular enlargements, rheumatic and gouty affections, etc.

We would urge our readers to send for literature on these new and very important iodine preparations to Schering & Glatz, 150 Maiden Lane, New York City, who manufacture them in the U. S. A.



Microscopic view (x250) of widely advertised "Incorporation of vaporized iodine in petroleum base,"  $\frac{3}{5}$  actual size.



Microscopic view (x250) of *Iocamfen* Ointment,  $\frac{3}{5}$  actual size.

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# THE JOURNAL-~~L~~ANCET

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and Official Organ of the  
North Dakota and South Dakota State Medical Associations

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## LUES\*

BY N. L. LINNEMAN, M. D., AND E. L. TUOHY, M. D.  
DULUTH, MINNESOTA

IN TWO PARTS—PART I

This study is an attempt at the classification of 387 cases of lues. Only a very few cases seen before July, 1911, are included in this series. Histories taken before that time were incomplete, and the Wassermann reaction had not been available to test our findings.

Statements regarding the prevalence of lues are usually vague and ambiguous. The disease has long been considered one of venery, and therefore has been pushed into the background, and discussed only with a degree of mystery. Post-mortems and death-records are practically silent, in striking contrast to other diseases that are no more chronic nor more universal. Both tuberculosis and cancer, for example, have the faculty of so dominating the disease-picture that they assume the chief rôle in the causation of death. Lues runs the same chronic course, and it has much to do with the great variety of disease entities; but, with a few exceptions, its distinctive pathology is so masked that only the symptomatic results stand in the foreground, and it is only by chance or intensive investigation that specific infection is uncovered.

The fact that we have had, for many years, an excellent therapeutic equipment for its treatment, has lessened, in no striking way, the prevalence of the disease. Even in our most civilized communities, syphilitics are prone to take treatment only so long as they have active symptoms. Without treatment at all, the natural immunizing

forces of the body are able to create long periods of immunity to the effects of the disease. Many cases, at first mild in character, have never had any treatment at all. When we add to this the fact that it is, of all diseases, the most striking example of inherited taint, we have every reason to surmise that there is a vast number of untreated syphilitics in every community, and that the various so-called "healing" springs, entirely worthy in themselves, have, no doubt in many instances, done great harm, because, to very many people, a visit to them is synonymous with a cure, and they often interrupt an otherwise well-ordained cure, which is never again taken up until the late lesions of the disease have appeared. The syphilitic is prone to follow his own inclinations, and to pass from one attendant to another, each time entirely forgetting the good advice he had received before. This is all greatly to be regretted, especially in view of the increments of knowledge that have come to us in the past five years. It has been clearly shown, with the aid of the dark-field illuminator, that a diagnosis can be made in the earliest stages of the chancre; and with the early intensive usage of salvarsan a sterilization of the blood is possible. This is so generally true that many well-authenticated instances are at hand where such an individual has been inoculated a second time. It can be just as definitely stated that, where the disease has passed on into the secondaries and the body has been thoroughly seeded, such a chemical sterilization is improbable, and thereafter the course of the dis-

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.

case will depend greatly upon the natural resistance of the individual, and the perseverance he shows in sticking to the proper treatment for a proper length of time.

If it be granted that syphilis is a prevalent disease, and, as stated by very many, that it is probably as frequently encountered as tuberculosis, there must be some reason why it does not figure more prominently in our mortuary records, as well as in our routine clinical diagnoses. The older clinicians were abundantly able to diagnose and describe syphilis, wherever it presented itself with objective symptoms. They were even able to go much farther, and describe many subjective signs of the disease. This was particularly true in the specialty of nervous and mental diseases, where their most efficient medical therapy was based upon the hypothesis that specific disease can be a factor in many diverse nervous states. It has been in the help given during the periods of latency, or when the external manifestations of the disease were limited, that the newer methods of serum analysis, investigations of the cerebrospinal fluid, luetin tests, etc., have proven of the greatest value. In this manner, new fields have been opened or older pathological hypotheses have been confirmed, and the true relationship between cause and effect established. It is well known that the Wassermann reaction has been found in other conditions than syphilis,—such as malaria, sleeping-sickness, tubercular leprosy, and occasionally carcinoma. As in any and all previous laboratory tests, it has been found that grotesque mistakes have been made when this test is not correlated with the clinical findings. In a disease so general, and showing such long periods of remission, it is only natural that it must occur many times in connection with other disease entities, and the finding of a positive Wassermann simply means that syphilis has been present some time. By the law of chance, these patients have splendid opportunity to have any and all of the other medical or surgical diseases common to man. Furthermore, a considerable percentage of syphilitics give a negative Wassermann; or the reaction may be temporarily present or absent, and a series of examinations made on different days may give conflicting results. Negative Wassermans have been disregarded where the clinical symptoms strongly suggested syphilis; and, vice versa, where a reaction proved positive, in the absence of suggestive clinical signs it was repeated several times, or antispecific therapy was instituted most cautiously.

We are in position to bring strong testimony showing the value of the so-called provocative use of the antispecific remedies in bringing out a positive Wassermann where it has previously been negative. From a technical side, the Wassermann test demands the most absolute adherence to a strict routine. The blood must be fresh, and all the materials used must be most cautiously scrutinized. It can be stated that the Wassermann is a much better guide to treatment in the early cases than in the so-called late tertiaries.

No hard and fast lines can be drawn governing treatment. All cases do not respond favorably to the same form of treatment; some will not respond favorably to salvarsan, but will do very well on insoluble mercury. On the other hand, there are many cases that react most readily to some soluble form of mercury. Late cases, as a rule, require a great deal of treatment to obtain any kind of satisfactory results, and should be under observation a long time. Most of the late hereditary type demand the most persevering and patient attention, since we are here dealing not so much with the active vascular perversions of tissue occasioned by the spirochaetes, but, rather, by hindrances in the development of an anatomical and functional nature affecting the entire economy of the patient. Persons with the most acute forms of syphilis can readily know their condition, and understand the necessity for prolonged treatment; in many of the other late cases, for social reasons as well as for the temperamental, great judiciousness is needed in selecting a form of treatment that can be carried out by the patient. Many times this must be more practical than ideal in form.

A familial study has been impossible, except in a few instances. While making a röntgenogram of the bones of the forearm of a young woman, a diffuse periostitis was encountered, typically luetic. The blood showed a positive Wassermann, and this drew our attention to the probability of inherited lues in the instance of a markedly neurasthenic sister, a possibility that was readily proven. It is too often assumed that when signs of lues are present, it is the result of a vicious life on the part of the patient, it being forgotten that innocent contagion is by no means infrequent and that the number of cases of hereditary lues, even among adults, is far greater than popularly supposed. We recognize the difficulty in drawing hard and fast lines separating the acquired from the congenital cases. We have seen the typical Hutchinsonian triad of symptoms only twice. Forty-seven of our cases we could



fairly place in the hereditary group, many of these because parental infection is known; others because of signs of syphilis early in life—such signs as enlargement of the liver, inequality of the pupils or other ocular disturbances.

To permit a closer analysis, the authors have presumed to divide these cases up into a certain grouping. We admit that many other classifications might be made, no doubt better than the one we have arbitrarily hit upon. At the same time, however, we have endeavored to divide them up according to the anatomical areas apparently giving rise to the chief symptom. The difficulties involved will presently become apparent. Where definite objective signs were present a separation into groups is fairly readily made. Chart 1 gives in order our different groups. The primary lesions, the early and late secondaries the cutaneous lesions, and the late involvement of the nervous system, furnish ready grouping. The cardiovascular and the gastro-intestinal cases furnish reasonable lines of cleavage; but there are large groups, with widely varying symptomatology, which almost defy classification. One hesitates to use the term "neurasthenia," and "miscellaneous" is rather meaningless. They had probably better be called "functional neuroses in which syphilis is a factor."

CHART 1—CLASSIFICATION OF THE TOTAL OF 388 CASES OF SYPHILIS

		Approx. Per cent
Primary cases .....	18	5
Secondaries .....	61	16
Cutaneous .....	40	10
Syphilis either known or discovered through knowledge of parental or conjugal infection .....	49	12
Nervous syphilis .....	31	9
Headache group .....	44	11
Gastro-intestinal .....	36	10
Stomach .....	6	
Gall-bladder .....	13	
Intestinal .....	8	
Cardiovascular .....	12	3
Cerebral sclerosis .....	2	
Aortic aneurysm .....	6	
Mesaortitis luetica .....	3	
Myocarditis .....	3	
Valvular defects .....	3	
Anemia .....	15	4
Secondary anemia .....	1	
Chlorosis .....	13	
Pernicious anemia .....	1	

Neuralgia .....	9	2.5
Jaundice .....	4	1
Pulmonary .....	5	1
Eye, ear, nose and throat.....	18	5
Functional neuroses .....	23	6
Bones and joints.....	23	6

Total ..... 388

Of all this group, 47 could probably be said to be hereditary. This is a hard matter to decide, but of course in most children it is apparent. It is usually considered that in a young unmarried woman who has positive signs of the disease and developmental defects, it is probably hereditary, and the character of the lesion is such at times as to make this division probable.

#### PRIMARY GROUP

In this group there are 18 cases. It is interesting to note that 4 were on the lip (3 on the lower and 1 on the upper); 1 on the right leg above the knee; 2 occurred at the meatus and 10 at the glans penis; and 1 occurred on the tonsil. In the secondary cases primary lesion in 5 was extragenital (2 on the finger, 2 on the lip, and 1 under the scrotum). A mixed infection complicated 3 of the primaries, causing ulceration. It is of interest to note that Fornier, in a large number of cases, found that the primary lesion may occur anywhere from fifteen to forty days after exposure. Pellazorri infected a healthy man, and found that the primary lesion occurred on the twenty-fifth day; and Metchnikoff's experiments on chimpanzees fixed the average incubation period as twenty-six days. Our patients in the primary group came under observation from one to five weeks after the lesion appeared, and their ages vary from 16 to 50 years.

#### SECONDARY GROUP

In this group there were 61 cases: 26, macular; 13, maculopapular; 21, papulopustular; and 1, ulcerative or malignant. These cases came under observation from one to twelve weeks after the onset. The ages of the patients varied from 2 to 61. A boy (two years of age) acquired the disease by being kissed by an aunt, who had mucous patches in her mouth. Fifty of these cases occurred under the age of 30.

It is of most interest to note that the character and extent of the eruption had little to do with the constitutional disturbance; for example, a slight macular eruption gave severe constitutional symptoms, while a very extensive eruption gave little or no discomfort.

CASES KNOWN TO HAVE SYPHILIS OR IN WHICH  
THERE WAS PARENTAL OR CONJUGAL  
SYPHILIS

In this group there were 49 cases. Forty-one consulted us to find out whether they were still in need of treatment, and 8 came because in each case the husband or wife had been infected, and it was desirable to know whether the patient had also contracted the disease. All gave positive Wassermanns and were treated. As far as could be ascertained, the disease had been contracted from six months to fifteen years previously. Fourteen of this group came because they were contemplating marriage, and wished to know their condition. In most of these cases the patients felt quite well, but in several, despite the absence of active complaint, evidences of syphilis, such as ulceration in the nose or tender points on the tibia, could be elicited.

CUTANEOUS LESIONS

In this group there were 40 cases. Mucous patches in the mouth and throat occurred in 3 cases. A great variety of ulcers were encountered: 5 on the leg; 1 on the right arm; 1 on the back of the neck; 5 on the tonsils; 1 on the tongue; 1 on the gum (about the back teeth); and in 1 there was a very large ulcer on the abdomen, below the umbilicus; 1 had ulcers about the rectum; 2 had large serpiginous ulcers back of the shoulders and neck; 4 had eczema-like, scaly patches in the palms of the hands; 1 had a rash like psoriasis quite generally over the body; 2 had gumma of the nose; 1, gumma of the upper lip; 1, gumma of the roof of the mouth; 1, gumma of the left cheek. One had a large broken-down ulcerating gumma of the scalp; 1 had condylomata lata around the vagina and rectum; 6 had a scaly condition, notably on the cheek, tending to cover considerable areas of the body; and 1 case had pemphigus-like blebs. In this cutaneous group there were 7 congenital cases, the ages being from one month to six years.

Ten of this group of acquired lues gave no history of the disease, and had no treatment. The others had had short courses of treatment.

NERVOUS LUES

In this group there were 31 cases: 4 cases of cerebrospinal syphilis and 27 cases of tabes. Three of the 4 cases of cerebrospinal syphilis were advanced and more or less paralytic. The other case was an early one, and it responded to treatment very readily. One of the advanced cases, which was of five years' standing, gradu-

ally grew worse, and finally died. Of the other 2 cases, 1 showed some improvement, especially so far as pain was concerned, and also gained considerable weight, the general condition being improved very much. The other case was under observation for four months, and he thought he was hopeless because he did not improve more rapidly; consequently, he quit treatment.

Of the 27 cases of tabes, 11 cases were in the stage of ataxia, and had considerable impairment of motion. These cases had had nervous symptoms from four to twenty years. Seven of these cases admitted having had syphilis, and had more or less treatment. The other 4 cases gave no history of syphilis. Five of these cases gave positive Wassermanns, and 3 of the negative Wassermanns gave positive cerebrospinal fluid. Eight of these cases showed more or less improvement, especially so far as pain was concerned. One case showed very marked improvement, especially as to motion. Three cases did not improve at all as far as we could see. In the other 16 cases there was little or no impairment of motion, and most of them consulted us on account of the pain, which was usually in the region of the legs. Three of this last group had optic atrophy of the primary type, and the eye-symptoms were the primary manifestations of the disease. In these cases there was no history of syphilis, and, consequently, never any treatment. In two of the cases, both the range and distance of vision improved. Both these cases improved also in general health. The other case continued his treatment for about three months, and abandoned treatment because of no improvement. He later lost his vision. Eleven of the 13 cases of early tabes improved under treatment. Two of these cases have not had any benefit from treatment. Five of these cases gave no history of the disease, and had had no previous treatment. The other 8 had had more or less treatment.

Thus far we have been dealing with conditions that present objectivity. When we attempt to further classify a large series in which organic perversion cannot be demonstrated, the problem becomes much more complicated. The multiplicity of symptoms is such as to make division, based upon a few symptom-complexes, almost impossible. A condition such, for example, as duodenal ulcer, which exhibits, at the most, only four or five cardinal symptoms, is simplicity itself compared with a disease like syphilis, whose symptoms are notoriously protean and may be

as many as a hundred in number. And still the most that can be expected, is to classify these cases according to the most emphatic complaint made by the patient. It will necessarily follow that a great many have other symptoms, almost equally important, than this major one, and for that reason, in certain instances, these secondary signs will be considered. Further, many of these patients would fall readily into the class of so-called "neurasthenic," with little correlation of their symptoms, the whole so bizarre as to be apparently meaningless. The old adage that, "if symptomatology is so indefinite as to point nowhere, to possibly simulate certain organic states, but not in a thoroughly satisfactory manner, it is well to have syphilis in mind," would appear to have a logical foundation.

#### HEADACHE GROUP

Persistent headaches of the nocturnal type are strikingly common in syphilis. In this group of 44, the females are slightly in predominance. In all but 20 a history of syphilis could be elicited. In many the length of time could not be positively stated. The shortest time after the infection was one month, and the longest fifteen years. The headache was definitely worse at night, usually

in the early morning, in 23. In others pain varied from a mild, intermittent type, associated with other conditions, to severe, prostrating, delirious types in 3 cases. Pain was declared by 5 to be intermittent in character and varying; and in 2 it was of the definite congestive type, accompanying the menstruation. The Wassermann had been positive in them all. The shortest length of time that the headache had occurred, when the patient came under observation, was one month, and the longest eight years (intermittently), and the average ran about three months. The eyes had been tested previously in a great many of these cases, and some had received some improvement from the wearing of their glasses. It is to be pointed out that a headache coming on apart from the use of the eyes, often present in the morning when the patient first wakes up, probably has no bearing upon the eyes. At the same time many luetic cases will begin to have headache late in the afternoon, but different in type—of a deep, boring character—and increasing in intensity. It is also to be remembered that migraine subjects may also have syphilis, and that different types of headache may be superimposed.

*(To be continued.)*

## PRESIDENTIAL ADDRESS BEFORE THE HENNEPIN COUNTY MEDICAL SOCIETY\*

BY R. E. FARR, M. D.

MINNEAPOLIS

Ladies and Gentlemen:

I wish once more to thank you for your kindness in presenting me with your highest office. Whatever has been accomplished during my term has been made possible by your kind co-operation and help. Being, as I have been, flanked on all sides by committees composed of enthusiastic and industrious workers, my task has been greatly lightened, and I wish at this time to acknowledge my debt of gratitude to all who have aided so generously.

If mistakes have been made, I assure you they were due to errors of the head, not of the heart.

Until a few weeks ago it had been my intention to present, at this time, a discourse upon some scientific subject, while fulfilling the dictates of the constitution, which calls for an annual address from your presiding officer. After giving the subject serious consideration for some

time, however, I arrived at the conclusion that it was my duty to discuss certain matters relating to the Society's welfare which are of interest to us all, even though the preparation of an article upon some scientific subject would be a much less arduous task, and would be more to my liking.

It is not without misgivings that I have attempted the task of analyzing the subjects which I shall discuss tonight and making suggestions to this Society, containing, as it does, so many men to whose judgment I willingly defer. However, my personal desires and perhaps my discretion have been disregarded in what might be designated the call of duty.

The output of any Society is measured to a large extent by the contributions and achievements of its members. Naturally, these questions present themselves: Are we as a Society doing all we can to advance medical science and education? Are we doing all we can to bring out of our members the best that is in them?

\*Read before the Hennepin County Medical Society, January 3, 1916.



And are our members giving to this Society their best efforts?

Answering these questions the following criticisms might be ventured:

It seems to me that responsibility for furnishing the program in the past has not been sufficiently definite. This matter is the most important one which any committee of our Society has to handle, and if, in the future, the program committee consist of the incoming President, the chairman of the Executive Committee, and the Secretary of the Society, this will usually give two hold-overs on this committee from year to year, and in no way interfere with the prerogative of the president in influencing the program to some degree. In arranging the program in the past, have we not made a mistake in failing to enlist the services of the younger members of our Society, due, in part, to the modesty and diffidence of these younger members, but due largely to the lack of properly directed effort on the part of our program committee? It is well known that nothing develops the physician more rapidly than does the preparation and presentation of scientific papers. The study necessitated for the presentation of such papers is decidedly beneficial. Again, have not a considerable number of those who have presented papers at our Society meetings in the past, felt that, as this was only the County Society, therefore no great amount of care was necessary in getting up a paper? Assuming this to be true, what is the reason? I believe that it is largely due to the fact that many papers are never published, and that in many instances no permanent record is kept. Naturally, if one knows that his work is to be published, he will make a greater effort than will otherwise be the case. This feeling that mediocrity is all that is necessary in presenting a paper before the County Society may be the reason also for the tendency of some members of the Society to present papers upon which they have put a great deal of work, and which are consequently of a great deal of value, before other organizations, instead of presenting them here. This brings up another question? Should not provision be made by the Hennepin County Medical Society, perhaps in conjunction with the Ramsey County Medical Society, and possibly one or two other societies in our state, to have a medical journal of its own, directed by medical men, in which our transactions could be published, thereby giving us a permanent record of our proceedings?

When one considers the very excellent pro-

gram given here a month ago on uterine hemorrhages, and notes the fact that two of the speakers prepared no papers, simply gave off-hand talks from notes, it is easy to realize what a mistake we are making in not having these articles published. This symposium on uterine hemorrhages should be published in one of the leading journals, and should have been prepared with that end in view.

In many of the most progressive societies throughout the country, the presentation of clinical cases is one of the most important functions. The interest manifested, and the education to be derived from this method of teaching, are probably second to none. Until recently our Society has been very slow in adopting the plan. A more extensive trial has been made of the method of late, and it seems to have given general satisfaction. Every effort should be put forth to continue this work, and better facilities should be provided for it.

A review of the past year shows that the attendance has been greater than ever before. This is as it should be, and the increase has been so great that the outlook is encouraging. The attendance at the day meetings has been especially gratifying. One year ago there were grave doubts as to whether or not the day meetings should be continued. With the enthusiasm manifested during the past few months there need be no fears regarding this point.

Our annual banquet was the largest ever held. Our treasurer's report shows that the Society has been able to meet all demands made upon it with a slightly increased cash balance on hand over 1915.

The Secretary has suggested a provision whereby we may change the by-laws in such a manner as to eliminate the present difficulty relating to non-payment of dues. This will cause those who are in arrears to be automatically dropped from the roster sufficiently early in the year so that the report may be made out for the State Association, without embarrassment.

Looking into the future, what should be our aims, and how may they best be accomplished? The destiny of the Society lies, I believe, largely in the hands of the future officers. If you would have a society which is to reach the highest degree of efficiency, your officers must be chosen with this end in view. Petty politics and jealousies should have no place with us. The presiding officer, the members of the Executive Committee, the Board of Censors, and the Delegates to the State Association should be chosen only

after the most mature consideration, and men should be put into these officers, not only because they have ability to fill them, but because they are willing to do the work. Our Society should lead the State, and indeed the Northwest, in the quality of its output of scientific papers. Our library should be greatly enlarged, and public-spirited citizens and physicians should be appealed to for contributions to this end. Our new home, when provided, should be fittingly decorated. Visiting physicians should be more cordially welcomed, and our clinical facilities should be more generally advertised. For instance, all surgical operations scheduled for each day, should be reported to a central bureau where visiting physicians might go for information.

No expense should be spared to make our new home the last word in medical-society quarters. Our shelves should contain every reputable medical journal printed in this country, and all of the leading journals from abroad. With proper effort we can have a reference library second to none. Facilities should be provided for the presentation of cases and specimens. A properly designed amphitheater, good light, x-ray cabinets (both plain and stereopticon), microscopes, invalid chairs, tables for demonstrations, and numerous models are very desirable. The Executive Committee has already ordered the installation of a cabinet for the presentation of radiographs. There should also be a complete supply of microscopes.

Thanks to the generosity of Dr. H. H. Kimball, we have installed an excellent up-to-date Balopticon apparatus; and thanks to the efficient work of our Executive Committee, we have the prospect for a future home for our society, of which we may all be proud. Visiting physicians should be encouraged to make our home their headquarters, and everything should be done to make things pleasant and comfortable for them at this place. Located as we are, in a city which has a large university medical school, our members should have the benefit of the teaching of the men in this institution. The facilities for research afforded by this institution should be more extensively used. Our great University, of which we are all justly proud, should make available every opportunity for the development of all physicians who are desirous of obtaining this privilege. Its attitude should be one of encouragement, and no effort should be spared in offering its co-operation to those who wish to avail themselves of these opportunities.

A question which has often presented itself

to me is this: Does membership in the County Society count for all that it should? Is membership in this organization the badge of honor that we all feel and know it should be? Do we through lethargy or indifference admit and harbor individuals who are morally and ethically unfit for membership? Is it not a fact that we have in our membership a few who are well known to have repeatedly committed acts which should disqualify them from longer carrying our endorsement?

In the past great care has been exercised by the Board of Censors in making recommendations of applicants, and there can be no criticism in this regard. The influence of the Society has helped some of those who might have strayed across the border without it.

However, when one, after being subject to that influence for a sufficient length of time, shows that he is unfit to wear our mantle, I believe he should be expelled. Dishonest practices, immoral or unethical conduct, and perjury are serious crimes. In court, for instance, one frequently hears the query: Are you a member of the Hennepin County Medical Society? The affirmative answer, accompanied by a considerable expansion of the chest, and a confident nonchalant air lends great weight sometimes to testimony which we all know to be false, and the Hennepin County Medical Society is classified accordingly. Is it not time to clean house? If these members insist on continuing these practices, why not let them do so under their own colors, instead of ours?

Let us substitute for lethargy, indifference, and ill-advised toleration, action founded upon evidence which is to be had, providing each one will do his duty, and expel from the Society some of the individuals who are beyond reform.

In considering the relations of our Society to the public, I wish to recall the demonstration given at San Francisco last summer. The interest of the public in things medical was to me perfectly astounding. The people are absolutely hungry for medical knowledge. Thousands upon thousands visited the exposition building at San Francisco and showed the deepest interest, not only in the exhibits, but in the papers presented. The attendance at Dr. Rodman's lectures here and at Rochester are other instances attesting the same general feeling. Are we doing all we should in educating the public about whom we complain so often? Should we give up one or two nights in a year for open public meetings of an educational character? What influence

can do more to bring about an improvement in the general tone of our work than an increase in the degree of intelligence in the laity about things medical? Suppose, for instance, that one hundred physicians would each give a fifteen-minute talk once a month in one hundred of the leading churches of Minneapolis for a period of one year, considering subjects with which the public is concerned, and considering them in a manner which the laity would easily understand, the program of subjects to be carefully prepared and arranged in logical sequence. This would amount to three hours a year each for one hundred physicians. The lectures could be given directly after the church service, and the people might remain or leave before the lecture began, as they saw fit. Who can measure the amount of good that might come from such a procedure! It is my belief that even the *somnolent* worshippers would not object to this innovation. The speakers could be assigned by a committee, and this would eliminate the possibility of any sound like a "church racket."

The public would be much benefited by more co-operation between our Society and the newspapers. Much misinformation would be eliminated from print, and some of our "mentally decalcified" members could be prevented from flaunting their remarkable achievements before the public if our influence were properly used.

From a social standpoint the progress in the last few years has been very marked, not only in the National Association, but also in the local society. Frequent meetings, and the rubbing of elbows with our neighbors, have made us more tolerant, and more able to appreciate and apply the golden rule. However, there is still much to be accomplished. Would it not be well, perhaps, for us to give one evening a year to the discussion of social, ethical, and business matters? I bespeak for this suggestion the earnest consideration of the incoming program committee.

A consideration of our business interests is so important that I cannot pass it without a word. The first matter which I want to discuss is that regarding the collection of our accounts. Nearly every business organization that I know of has some method of protection. Why not we? It is a notorious fact that physicians are imposed upon more frequently than is any other class of people. One cannot estimate the amount lost every year from the failure of physicians to collect from "dead beats." I am not referring now to people who are not able to pay their bills, but to those who are able but unwilling.

They go from physician to physician, and obtain services free of charge. Our committee appointed by the Executive Committee to investigate the matter reports as follows: "That in the organization known as the Minneapolis Associated Credit Exchange we perhaps have a means of educating the laity regarding the payment of their accounts." I shall not spend any time detailing the workings of this organization, but simply suggest that the Executive Committee's recommendation be carried out, and an earnest effort made to eliminate the "dead-beat" evil.

I have but one more suggestion, and I have done.

Unfortunately, we physicians, whose function it is to bring good cheer and help into so many homes, are subject to the same ill luck as are all other individuals. Old age and sickness overtake us exactly as they do others. It is unfortunately true that there are always some members of our Society who, for these reasons, are unable to meet the demands made upon them, and find it necessary to call upon their fellows for aid. There are few of us, I believe, who have not at some time been called upon to help out an unfortunate brother; and, I believe, there are still fewer who have refused any such request. Seeing, as we do, so much suffering, so much poverty and so much distress throughout our period of active practice, it is no wonder that physicians, as a class, are perhaps the most charitable of all living men. There is not a day that passes in which we are not called upon for many acts of sympathy; and it is natural that our charitable instincts should be more strongly developed than are those of others. Would it not be well for us, then, to make some provision for the care of members of our profession who through sickness or bad luck have found themselves unprovided for?

While considering this matter in the past, I have spoken with a large number of the members of our Society concerning the subject. In no instance have I found a member who was not heartily in accord with my suggestion that at this time we make some provision for the care of our members who are in need of help. After considering the subject seriously and somewhat thoroughly, I have come to the conclusion that a suitable fund should be raised by subscription. To this fund every member of the Hennepin County Medical Society should be invited to subscribe, for perhaps an assessment would be undesirable. Payments might be made in installments,



and the amount subscribed might bear interest after a certain date.

Dr. Abbott has offered valuable suggestions, and he has been of great assistance in trying to work out a plan. His suggestions are that the subscriptions be paid in yearly installments, one-third of the amount being paid every year for three years; that one-half of the amount subscribed be invested in interest-bearing securities, as a growing fund, the other half to be used for the immediate benefit of needy physicians; that, as these funds are collected they should be placed in the hands of the Trustees of the Society for use and investment as above suggested, and that death or incapacity should automatically release the subscriber; that a committee of twenty should be appointed to solicit subscriptions.

I believe every member of our Society would be only too glad of the opportunity to contribute to a fund of this kind. There are some among us who are able to give a comparatively large amount; there are others who are not in a position to give a great deal. What worthier cause

could one contribute to than this with the knowledge that the income from every dollar contributed, would, for all time, be distributed among the needy physicians of our Society?

A detail that would have to be attended to would be the establishment of some rule which would prevent physicians who are in failing health, or who are reaching an advanced age, from joining our Society for the purpose of obtaining the benefit of this sort of pension. Many other details would have to be worked out before this scheme could be properly consummated. However, the main questions to decide would be: Is such a fund desirable? Is it necessary? Are we willing and ready to contribute our individual mites?

These are matters which you must decide. This, with the several other matters which I have mentioned tonight, are now in your hands for your consideration. If there is anything in any of them which will be of benefit to our Society, I will be amply repaid for trespassing upon your time.

## SURGICAL SHOCK\*

By R. D. CAMPBELL, M. D.

GRAND FORKS, N. D.

It has been said that "the surgeon has triumphed over pain by means of anesthetics and over sepsis by means of sterilization, but that shock remains as the great barrier to perfect success." Much interesting and important research work has been done during the last few years, and many experiments have been conducted, with a view to finding the best means of preventing and combating shock.

Sharpe, in a recent paper, states the following conclusions by different writers as to the cause of shock: (1) vasomotor exhaustion and paralysis; (2) cardiac spasm, with ultimate failure; (3) functional inhibition of all the organs; (4) acapnia; (5) morphologic alteration, with ultimate partial or complete disintegration of the ganglion cells.

After commenting on each of these in turn, Sharpe adds: "One might well question whether any one theory, or any combination of two or more, affords an adequate explanation of the phenomenon, shock."

The conclusion would seem to be patent that as

yet we can no more accurately comprehend shock and all its protean manifestations, than we can satisfactorily estimate other fundamental conditions, such as life or death. Of the various theories thus tabulated there is none that has failed to produce suggestive data; but their individual values are widely separated.

At the present time the theories of Crile and Henderson seem to attract the most attention. George W. Crile has been a most capable and persistent worker in this field, and has carried on many experiments. His conclusion is, that all forms of shock,—traumatic shock, emotional shock, toxic shock, or drug shock,—are caused by over-stimulation and consequent exhaustion, that brain cells show physical change corresponding to each change in the cycle of shock.

The organs of the body especially involved in shock are certain organs whose function is that of converting latent energy into kinetic energy in response to adaptive stimulation, via the brain, the thyroid, the muscles, and the adrenals. If the stimuli are overwhelmingly intense then the kinetic system, especially the brain, is exhausted and even permanently injured. In consequence

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of the exhaustion of the vasomotor center the small arteries are allowed to dilate, blood collects and stagnates in them, especially in the large vessels of the abdomen, and there is not enough circulating blood to maintain the proper supply to the brain and other important structures.

Henderson, on the other hand, maintains that shock is of respiratory origin, and he has given it the name *acapnia*. The respiratory center depends on the carbon-dioxide content in the blood. When this rises above a certain figure respiration is stimulated. The gas is furnished to the blood by the muscles, glands, and other tissues continuously, each movement of expiration reducing the blood content. In violent exercise the breathing is excessive because more carbon dioxide is given off by the tissues. It is therefore not the lack of oxygen that excites the respiratory center, but the rise of carbon dioxide above a certain percentage. According to Henderson the deep and rapid breathing which is induced by pain, excitement, or exposure, or handling of intestines, reduces the amount of carbon dioxide in the blood to a very low figure; therefore, when the stimuli cease, breathing becomes very shallow and occasional, and at the same time the blood-pressure falls and the heart beats quickly. His theoretical conclusion as to the cause of death is that it is due to lack of oxygen, the store becoming exhausted before the carbon dioxide rises high enough to stimulate the center into activity again.

*Blood-Pressure.*—It is universally admitted that the clinical measure of shock is the fall in blood-pressure. This is determined by means of a sphygmomanometer, of which there are a number of makes on the market. The simplest and most accurate method of determining the blood-pressure is by auscultation. By this method the diastolic, as well as the systolic, pressure can be determined with greater certainty than by visual reading of the aneroid needle or mercury column. The cuff is applied to the arm in the usual way, and all pulsation obliterated; then by releasing the pressure on the arm slowly, and listening by an ordinary stethoscope over the artery below the cuff, one hears a loud, clear thump when the arterial wave first passes the constricting cuff. The height of the mercury column read at this moment indicates the systolic pressure. If one continues to release the air-pressure, the first thumping sound will be replaced by a murmur, which in turn is followed by a second thumping sound, which gradually becomes louder, then fainter, and shortly thereafter disappears. The true dia-

stolic reading should be made at the time the second thumping sound is loudest, but for clinical purposes the disappearance of all sound will suffice.

The factors normally at work in maintaining the blood-pressure are more complicated than was at one time apparent. It varies with the activity of the heart, by the caliber of the smaller arteries, which are regulated by the vasomotor center in the brain; vasoconstriction naturally raises the blood-pressure; and vice versa. The respiratory movements have an influence. The volume of circulating blood affects the blood-pressure. Gravity also has its effect, as when some people faint when arising too suddenly from a hot bath, because the vasomotor control is not sufficiently powerful to constrict all the vessels in an instant so as to keep the blood circulating through the brain. Hill's experiment on a tame rabbit and a wild rabbit, illustrates the same condition. The tame rabbit held up by the ears will die; the wild rabbit survives. In the tame animal all the blood tends to collect in the pendulous belly, and the feeble vasomotor control is unable to constrict the vessels and to drive it up to the brain. This is similar to the picture of surgical shock in man. The secretions of the suprarenal glands are supposed to assist in maintaining the activity of the vasoconstrictors, and must be considered.

*Prevention of Shock.*—It is extremely important that the proper time of operation be selected and the proper preliminary preparation carried out. It is a mistake to exhaust a patient by the administration of drastic purgatives the night before operation. A mild laxative, with an enema the morning of operation, clears the alimentary canal, and does not drain the fluids from the body. The choice of an anesthetic is also important, and here the skill of the anesthetist plays a most prominent part in reducing to a minimum the harmful effects of a general narcosis.

Ether, with all its disadvantages, is probably the most universal and satisfactory anesthetic we have; but lately nitrous oxide and oxygen is being used more extensively, and is probably the least depressing of all methods of inhalation narcosis. The routine of administering morphine, or morphine and scopolamine, an hour before operation is more common in Europe than in this country. Personally, I believe the practice is of advantage in some cases, but have not adopted it as a standing order.

All things being equal, the shorter length of time a patient is on the operating-table the less

shock will be called upon to withstand. This fact is responsible for the two-stage operation in serious cases, as in brain tumor, removal of the prostate secondary to the establishment of a suprapubic drain, the two-stage operation for cancer of the rectum, etc. Rough handling of the abdominal viscera is conducive of shock, and should be avoided; in fact the more gentle the manipulations are the less shock there will be. It is also important that the loss of blood should be as small as possible.

To prevent shock, Crile has introduced a shockless operation through anoci-association, which means the exclusion of all nocuous or harmful associations or stimuli from the brain. There is no single anesthetic which will bring about this condition, but it is accomplished by a combination of anesthetics and the avoidance of all psychic strain or excitement.

Crile's technic is as follows: In abdominal operations one-sixth of a grain of morphine and  $\frac{1}{450}$  of a grain of scopolamine is given one hour before an operation. If local anesthesia alone is employed, novocaine, in  $\frac{1}{400}$  solution, is used in progressive local infiltration. If inhalation anesthesia is employed, he administers nitrous oxide, either alone or with ether added as required.

As soon as the patient is unconscious, first the skin and then the subcutaneous tissue is infiltrated with  $\frac{1}{400}$  novocaine. In order to spread the novocaine, immediate local pressure is applied with the hand. Anesthesia is immediate. Incision through this anesthetised zone exposes the fascia. The fascia is then novocainised, subjected to pressure, and divided. This brings us to the remaining muscle or posterior sheath and to the peritoneum. These structures are then infiltrated with novocaine, subjected to pressure, and divided within the blocked zone. If blocking has been complete, upon opening the abdomen there will be found no increased intra-abdominal pressure, no tendency to expulsion of the intestines, and no muscular rigidity.

The peritoneum is next everted and a one-half per cent solution of quinine and urea hydrochloride is infiltrated about the line of proposed sutures, and, as before, the parts are then subjected to momentary pressure. This infiltration serves as a block, and as its effects last for several days it should prevent, or at least minimize, the post-operative wound pain and the post-operative gas pains, and by so much minimize post-operative shock. Quinine and urea hydrochloride cause a

certain amount of edema of tissue, which lasts for some time after the wound is healed.

In particularly nervous patients or in those suffering from Graves' disease the patient's consent to an operation is secured before hospital treatment is begun. Then a fictitious anesthesia is given under the guise of treatment for several days previous to the operation. The patient when anesthetised for operation is free from psychic strain, as he is under the impression that he is receiving an inhalation treatment.

When anesthetised the patient is taken to the operating-room. Each division of tissue is preceded by blocking so complete that no impulse can reach the brain. Before the wound is closed every part of the field is completely blocked by quinine and urea hydrochloride injected with a hypodermic needle. The patient is kept unconscious, under anesthesia, until he has returned to his room and until his room is restored to its condition when administration of the anesthetic was begun. Since, in the course of the cycle from his room to operation and return, his brain has received no activating stimuli there can be no change in the pulse. No record of the operation has been written, either upon the subconscious brain or the conscious brain.

*Treatment of Shock.*—It is practically impossible in many instances to distinguish between shock and hemorrhage, especially after severe operation; but this is a most important question when treatment is undertaken.

In shock the patient is depressed, muscular tone is absent, the skin is cold and clammy, the respiration rapid and shallow, pulse rapid, irregular, and weak. In hemorrhage the patient is not so depressed, muscular tone is increased, skin is pale and dry, respiration is rapid. There is air hunger, pulse shows a steadily progressing increase in rate with a proportionate decrease in quality.

When shock has been established warmth is of the highest importance. The patient should be wrapped in warm blankets with hot bottles placed outside of the blankets. He should be quickly put to bed, laid flat, and the foot of the bed raised eighteen to twenty-four inches, and he should be kept as quiet as possible. The abdomen and limbs should be bandaged in order to supply blood to the vital centers.

Timely transfusion of human blood, according to Crile, will prevent death from shock; but it must not be delayed too late, for a low blood-pressure causes deterioration of brain cells. This is accomplished by direct transfusion of blood



from the vein or artery of the donor into the vein of the recipient, either by suture or interveining cannula. Lindeman uses a series of Record syringes with two sets of cannulas, one for the donor and the other for the recipient. Of all methods this is the simplest, and, once the veins have been entered, requires least skill. It has the advantage that the exact amount of blood transfused is known.

Intravenous saline infusion, enteroclysis, hypodermoclysis, stimulating enema of hot coffee and whisky—all have value. A hypodermic of morphine relieves pain, quiets the patient, and helps to conserve energy, and should always be given, except in small children or old people, or when the patient is already unconscious. Other stimulants, such as camphor, adrenalin, and pituitary extract, are largely used at the present time, but must be cautiously administered.

There is much diversity of opinion with regard to the use of strychnine in cases of surgical shock. Some of the modern authorities strongly condemn its administration.

Crile claims that it is as rational to treat the exhaustion of shock with strychnine as to treat the exhaustion of strychnine with trauma. Brown says "strychnine has been greatly used in recent years. It is the first shot in the locker of the house surgeon and often the last. As a treatment for shock strychnine is worse than useless, and its employment should be absolutely condemned. It acts by stimulating the already practically exhausted nerve cells and it results in still further exhaustion. It is like the action of a bellows on a dying fire: it burns up more brightly for a time, to expire more rapidly. It

is also probable that some patients suffering from surgical shock have lost their chance of recovery from too frequent stimulation with strychnine."

At the present writing, therefore, the theory of Crile would seem to furnish the largest measure of knowledge and his practical deductions and applications in the form of anoci-association would seem to offer the most valuable results in technic and treatment.

#### DISCUSSION

DR. H. H. HEALY (Grand Forks): Shock is one of the great barriers to modern surgery. We have, in a measure, overcome pain with the general anesthetics. We have been able to go into the abdomen and out again without sepsis through our antiseptics, but we still have shock to contend with. It is true that for many years we have in a way recognized shock; but we have all been leary of operating on the patient who greatly fears the operation, especially the one who paces the floor up and down previous to the administration of the anesthetic, saying, "I will die, I will die." We greatly fear that attitude. I believe we should be especially careful in the choice of the anesthetic in operating for hyperthyroids. I was reading over the various theories as to shock with the essayist and I believe I have been more favorably impressed with Dr. Crile's work than with that of any other. I have had the pleasure of listening to him and looking at the slides prepared in his experimental research laboratories, and I think that he is probably on the right track. I am sure there is so much to learn about this particular thing that in the future we ought to give it much more attention than we have in the past.

DR. R. E. WEIBLE (Fargo): I think to a large extent shock can be covered by the word "hemorrhage," by the pulling on the mesentery of the intestines themselves, or pulling on any of the viscera. When we avoid these two things, it is surprising how long one can operate and with how little shock.

## SURGERY OF THE THYROID\*

By VAN BUREN KNOTT, M. D.,

SIoux CITY, IOWA

The history of thyroid surgery has practically been written during the past thirty-five years. Prior to that time, operative attack upon the gland was considered as very dangerous and unwise. The functions of the thyroid were not understood, and surgeons generally advised against surgical intervention in practically all cases.

To Theodore Kocher belongs the credit for placing surgery of the thyroid upon its present

firm foundation, and his experience in the surgery of this gland is today greater than that of any other man. Kocher's first work upon the thyroid was confined to the surgery of simple goiter, and, living, as he does, in Switzerland, where goiter is endemic, his opportunities for observation and the facilities for extension of his experience have been unusual.

Shortly after Kocher had demonstrated that the thyroid gland might be successfully attacked, Moebius published his work explaining the physiology of the gland and much of its pathology.

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The impetus given thyroid surgery by the work of these two men was enormous; and, as confidence and experience increased, many operators and physiologists in various parts of the world contributed findings of more or less value, until today we may consider the subject as occupying a well-defined and well-earned position among surgical procedures.

The surgical diseases of the thyroid that will be considered are certain abnormalities of development, hemorrhage into the substance of the gland, acute inflammation, sarcoma, carcinoma, tuberculosis, syphilis, benign tumors, actinomycosis, echinococcus disease, and simple goiter.

*Abnormalities of Development.*—Part or all of the gland may be congenitally absent. Absence of the entire gland is accompanied by cretinism, and it is possible that this condition could be relieved by thyroid or parathyroid implantation.

Accessory thyroid nodules may be found in any portion of the neck, from the sternum to the tongue, and their removal is at times made necessary by tumor involvement. Persistence of the thyroglossal duct with involvement of the thyroid isthmus or one of its lobes, may call for surgical intervention, as in two cases seen by the writer, in one of which it was necessary to remove the right lobe of the thyroid, which was occupied by a large cyst communicating with the lower end of the sinus.

Hemorrhage seldom, if ever, occurs in the normal thyroid unless caused by severe trauma. It may occur, however, in goiter. Should the intraglandular tension be too much increased, or should pressure on the trachea become intolerable, because of the rapid increase in the size of the gland, evacuation of the clot might be demanded.

Acute inflammation of the thyroid may attack the normal thyroid; or it may attack a thyroid that is the seat of goiter. In the first place it is known as thyroiditis, in the second as strumitis.

Thyroiditis, or inflammation of the normal gland, is much more rare than strumitis, as the degenerative changes accompanying the goiter limit the naturally great resistance of the gland.

Both varieties are due to infection, and usually complicate some of the infectious diseases, such as influenza, typhoid, etc.

The writer saw one case of acute thyroiditis through the courtesy of Dr. Jas. F. Taylor, of Salix, Iowa, which followed a severe attack of influenza, and which was accompanied by

abscess-formation. The pus ruptured through the posterior surface of the thyroid, and came in contact with the trachea, making its evacuation at operation very difficult.

I have also seen one case of post-typhoid strumitis in a woman of forty-three, who eight months after an attack of typhoid fever entered the hospital complaining of dyspnea and pain. She had had a large cystic goiter for twenty years. Operation showed the right lobe of the gland to be entirely broken down, and the seat of a large abscess containing live typhoid bacilli.

The treatment of either acute thyroiditis or acute strumitis which has gone on to pus-formation, consists in free incision and drainage.

*Sarcoma.*—Any of the varieties of sarcoma may be found in the thyroid, and the disease usually appears in a goitrous gland. As it occurs with comparative frequency, and as the only hope for the unfortunate patient is offered by an early and radical operation, prompt recognition of the nature of the tumor, and equally prompt removal of the gland, are imperative.

The writer has seen one case of sarcoma of the thyroid through the courtesy of Dr. Bowers, of Mitchell, S. D. In this case, although the operation was made soon after the appearance of the growth, the tumor proved to be a small round-cell sarcoma, and the patient died within four months from recurrence in situ.

Operation should not be undertaken in malignancy of the thyroid if the growth has perforated the capsule, if the growth is adherent to the great vessels in the neck, or if evidence of marked cachexia is present. While surgery presents the only hope for these unfortunate patients, it must be admitted that recurrence of the growth has been the rule.

Carcinoma of the thyroid occurs with much frequency, and may be recognized by the signs which characterize the disease elsewhere. The preceding remarks concerning the treatment of sarcoma, apply with equal force to carcinoma. Early diagnosis, followed immediately by radical operation, is the only recourse.

Tuberculosis of the thyroid usually occurs during general miliary tuberculosis, but a few instances of tubercular degeneration of the normal gland have been reported, in which no general tubercular infection was present. Tuberculosis occurring in goiter is very rare. In 3,200 cases in which Kocher removed the gland only one was found to be tubercular.

The treatment consists in the removal of the

gland, exercising care to preserve the parathyroids.

*Syphilis.*—Syphilitic involvement of the thyroid is more or less common, and has surgical interest merely because at times the necessity of making a differential diagnosis between syphilis and other diseases of the thyroid arises. In all syphilitic cases the administration of potassium iodid will determine the diagnosis, for syphilitic involvement of this gland yields very rapidly to proper medication.

*Benign Tumors of the Thyroid.*—The occurrence of benign tumors is extremely rare. Cases have, however, been reported in which at operation the enlargement of the gland was found to be caused by a fibroma or lipoma. The treatment of such cases consists in the surgical removal of the growth.

Actinomycosis of the thyroid has been seen but rarely, and usually occurs by extension along the cervical fascia. Cases have been reported in which the destruction of gland substance by this disease has been so extensive as to be followed by myxedema. The treatment consists in the removal of the diseased portion or portions of the gland, with the usual precautions to be observed in the treatment of actinomycosis elsewhere.

Echinococcus disease of the thyroid gland is also rarely seen. Diagnosis before operation has, it is said, never been made.

*Simple Goiter.*—By far the largest number of cases of enlargement of the thyroid are due to some form of simple goiter. Kocher classifies simple goiter as diffuse, in which the entire gland is involved, and nodular, in which only a portion of the gland is involved.

Diffuse goiters are further subdivided by the same authority into—

1. Hypertrophic follicular goiter.
2. Parenchymatous goiter.
3. Diffuse colloid goiter.
4. Diffuse vascular goiter.
5. Diffuse fibrous goiter.

Nodular goiter, while limited to one or more portions of the gland, presents the same degenerative changes found in diffuse goiter.

In the time at our disposal it is not possible to take up the consideration of the pathology of goiter, and we shall proceed to the consideration of its treatment.

It is now usually conceded that goiter is caused by some unknown bacterial infection found in the drinking water habitually used by the patient.

This theory is supported by the fact that those persons drinking from so-called goiter wells are practically all affected with goiter. The first thing, then, which suggests itself in the medical treatment of goiter, would be a change of water supply. Ochsner states that more than one-half of all cases of simple goiter will recover under proper hygienic, dietetic, and medicinal treatment.

It is not within the province of this paper to consider this form of treatment, but it is proper to mention it, as surgical treatment of simple goiter should not be instituted until medicinal treatment has been given a chance. Upon the other hand, medical treatment may be much too prolonged in certain cases, and great harm done thereby. Kocher says that careless treatment with iodine is much more dangerous than excision of the goiter.

It is now a well-established fact that the excess of thyroid tissue may be removed if the parathyroids, two or more, are not removed or injured, and if a portion of the gland, equalling in size the normal thyroid, is left in situ.

Removal of the entire gland is always followed by myxedema; and this disease frequently appears when large portions of the gland have been destroyed by some degenerative process.

Removal of all the parathyroid bodies but one is usually followed by tetany.

Forsyth says that the usually accepted opinion that the parathyroids are four in number and that two may be removed at times with impunity, is erroneous, as these bodies may number from one to eight, and that it is impossible to be certain as to how many have been removed and how many left behind.

The fact remains that during operations upon the gland extreme care must be taken to preserve these small but important bodies.

*Indications for Operation.*—The indications for operation as given by Kocher are as follows:

1. Nodular goiter with nodules undergoing degeneration.
2. Diffuse colloidal tumors which have resisted medication.
3. All goiters causing pronounced pressure symptoms.
4. All goiters which produce cardiac symptoms. Many so-called simple goiters produce marked heart symptoms,—a fact which frequently is not recognized.
5. All goiters which are abnormally situated, such as intrathoracic goiter.



6. All goiters which develop suddenly and grow rapidly.

7. Goiters which are unusually tender upon pressure.

The contra-indications to operation given by the same authority are the following:

1. Respiratory and circulatory disturbances of long standing when due to goiter with secondary impairment of the vital functions.

2. Disturbances of the circulation, the heart action and the respiration due to the concomitant disease.

Experience has proven that the ordinary goiter operation is a very safe one, and that the former dangers of hemorrhage, sepsis, etc., have been practically entirely removed by greatly improved technic.

*Operative Treatment.*—Excision is the method of choice. The general technic of the operation cannot be taken up at this time, but a few of the most important points should be briefly considered. Practically every goiter operation should be done under general anesthesia. The writer has done several thyroidectomies under local anesthesia, but discarded the method years ago.

The mental effect upon these nervous patients induced by an operation performed upon them while fully conscious, is much more serious and actually dangerous than is general anesthesia induced by ether given by the open-drop method. The anesthetic in this as in every other operation should be administered by a skilled anesthetist.

The collar incision of Kocher will be found to be the one most uniformly applicable in these cases; and it is followed by an almost invisible scar.

After section of the platysma, free exposure of the gland may usually be secured by retraction of the sternohyoid and sternothyroid muscle. Their separation will be found necessary only in the case of a very large tumor, or one which is very adherent. After stripping off the external capsule, the finger is swept around the goiter, loosening it so that it may be dislodged from its bed. I consider it much more preferable after the delivery of the goiter to ligate the superior thyroid vessels first, as they may then be severed and the goiter still further mobilized, permitting the ligation of the inferior vessels to be made with greater ease and the recurrent laryngeal to be avoided with greater certainty. Extreme caution must be employed to stay within the capsule, that the parathyroids may be preserved.

The lobe now having been freed to the isthmus this point of communication is crushed between the jaws of a stout clamp and the stump sutured with catgut using a lock stitch. Tubular drainage should be used in every case, the tube being removed in forty-eight hours.

Enucleation and resection are other methods of dealing surgically with simple goiter. Enucleation will be found applicable in very few instances, and has usually proven very unsatisfactory. Resection is also an unsatisfactory and difficult procedure, and should be employed only in complicated cases where excision is contra-indicated because of involvement of both lobes to so marked a degree as to necessitate the excision of one and a partial resection of the other.

Exophthalmic goiter was first described by Parry, in 1825, by Graves, in 1835, and by Basedow, in 1840. It is generally known in this country as Graves' disease, while in Germany it is called Basedow's disease.

The theory of Moebius, who has done much to advance the knowledge of the thyroid by his physiological investigation, is, that the disease is due to excessive secretion and absorption of thyroid fluid. By some the claim is made that in certain cases of Graves' disease there is no enlargement of the thyroid. Kocher states, however, that he has never seen a severe case without some definite change in the gland. The term exophthalmic is many times inappropriate, as the exophthalmos may not be at all marked or may be absent, even in severe cases. The cardinal symptoms of the disease are tachycardia, nervousness, exophthalmos, and more or less marked changes in the thyroid gland. To these may be added many minor symptoms, among which may be mentioned tremor, muscular weakness, Graefe's sign, Stellwag's sign, Moebius' sign, Kocher's sign, paroxysmal dyspnea, and many others. Time does not permit further discussion of the symptomatology of this disease; but I wish to state at this time that far too many cases are permitted to go unrecognized until they have reached such a stage that relief is out of the question.

I wish to subscribe to the opinion that exophthalmic goiter is in the majority of instances a surgical disease, and that, if these patients are given the benefit of early diagnosis, which should be promptly followed by operation, the vast majority will recover. The exception to the statement is furnished by the very acute form, which is soon followed by death.

The importance of the symptoms mentioned

above and their early recognition and proper classification cannot be too thoroughly emphasized. Medical treatment of all kinds has been employed. The thyroidectin of Moebius, the serum of Rogers, the milk of thyroidectomized goats, and many different drugs have been administered with meager success.

During the past few years the results following operation have been much better than those secured by medical treatment, and many surgeons are now agreed that surgery offers the best prospects for relief in suitable cases.

Cases unsuitable for operation are those very acute and very severe cases which are soon followed by death, and those chronic cases which have been permitted to reach such a pitiable stage of toxemia and general bodily weakness as to forbid any such effort at relief.

*Operative Treatment.*—Among the forms of operative treatment which have been advocated for exophthalmic goiter may be mentioned excision, ligation of two or more arteries, Jaboulay's excision of the sympathetic, and the polar ligation of Stamm. Jaboulay's sympathectomy has been discarded as useless. Ligation of the arteries has been followed by tetany when all four were tied, as originally suggested; and it now is employed principally in very extreme cases where excision is contra-indicated, two or three vessels being tied as a preliminary to a subsequent excision.

Excision is the method of choice, and in the hands of experienced operators has been followed by remarkably good results, both as to relief of symptoms and operative recovery.

The operation is performed as for simple goiter, but should never be undertaken by an inexperienced surgeon. The operation must be characterized by rapidity of performance and a minimum of trauma.

In experienced hands the mortality following excision of exophthalmic goiters is below 4 per cent; and the mortality following excision of simple goiters by the same surgeons is below 1 per cent. The mortality is in both classes of cases lower than can be secured by any other method of treatment; and it is time that the general fear concerning operations upon the thyroid gland should disappear.

Following the operation, the onset of acute thyroidism should be anticipated by the administration of enormous quantities of water, either by mouth, subcutaneously, or per rectum.

Ligation of both superior poles of the thy-

roid gland was first practised by Stamm, of Ohio.

The ligature should be of linen or silk to insure permanence, and should be applied to encircle a generous amount of gland tissue at either pole. The superior thyroid artery and vein, as well as the lymphatics, are included by the ligature. By including the lymphatics it was hoped to more effectually shut off from the circulation the absorption of the thyroid toxic elements. This procedure may be employed in cases too far advanced for an excision, as it may be quickly done, and is accompanied by little trauma. We have employed it in fifteen cases with satisfactory results. It may later be followed by excision if indicated.

It would not be proper to close this article without reference to the relief which is now available for patients who are the victims of post-operative tetany.

This complication should not occur, for, when it does follow thyroidectomy, it is apparent that either too much of the gland has been removed or that the parathyroids have been sacrificed. It is a most distressing and serious complication, and has often been followed by a fatal result. Cures have been effected by the administration of fresh parathyroids from the ox. In two cases seen by the writer, relief was secured by the administration of thyroid extract.

Brown, of Australia, reports a remarkable case, in which, after exhausting all other resources in a most severe and persistent post-operative tetany, his patient was completely relieved by the transplantation of three human parathyroids taken from the donor immediately after death, and implanted beneath the left rectus abdominis of the patient. This instance, together with that of Eiselberg and the experimental work done by Halsted and others, would indicate that, in the near future, we may expect parathyroid implantation to remove one of the most serious post-operative complications of thyroidectomy.

The recent articles upon surgery of the thyroid by Oschner and Thompson, Theodore Kocher, and F. J. Shepard, have been of great assistance in the preparation of this article, and have been freely quoted from.

#### DISCUSSION

DR. B. A. BOBB (Mitchell): I certainly want to compliment the doctor on his most excellent paper, which has been very interesting.

Dr. Knott makes it a very simple thing to remove a simple goiter. As a rule, when these goiters shell out without any adhesions, the operation is a simple thing,



but, once in a while, from injury or from some plastic inflammation that has occurred there, it is more difficult, and the operation is not quite so easy as we would think. Of course, with the introduction of the Kocher method, and by the stopping of hemorrhage as you go along, not allowing a bit of it, by means of his forceps, and by picking up the blood-vessels by his method, it makes it a great deal easier.

We never notice these things very much until we have something happen in the work we are doing.

He did not speak specially about injury to the recurrent laryngeal nerve, only he said simply that we must avoid it. I was unfortunate enough at one time to resect the recurrent laryngeal nerve, and the lady lost her voice and could speak only in a whisper for some six months. It is very humiliating to the operator indeed to have a patient return to you and want to know when he is going to be able to talk out loud again. So I think an exceedingly good point to be brought is, that after you get the goiter loosened up and shelled out, the superior artery should be ligated first, and then brought down; and after that you can avoid much more easily the recurrent laryngeal nerve.

Another thing he brought out in exophthalmic goiter, which is very important, is, that we cannot see the parathyroid glands, and when you begin excising the thyroid from above downward, and not shelling it out, but leaving part of it, that is when you get your hemorrhage, and when the operation is most difficult. We have to be so careful in handling the gland not to express any of the secretion, which will cause hyperthyroidism, and also be so careful not to injure or remove all of the parathyroids, which would leave our patients in a state of tetany, which sometimes does not come on for a few weeks, or it may come on within a month, or two or three months afterwards.

One thing that has been brought out by Kocher and other operators is to avoid absorption of the secretion by drainage. In the last few years they have been doing this, and some even put in an irritant so as to make it drain the more freely; therefore, whatever of the gland is expressed in handling should be drawn off to where it does not get into the system.

There is one thing the doctor did not mention in the danger of doing this operation which is very disturbing and humiliating, and that is the collapse of the trachea; and that is another thing which, unless you have had it occur, you would not appreciate. Sometimes in loosening it up, when you loosen the thyroid the trachea will completely collapse; and when it does the harder the patient attempts to breathe, the more difficult it is, and finally he cannot breathe at all. Of course, you should reach down with a tenaculum, and sometimes it will have to be tied up, so that it will not collapse again.

DR. G. G. COTTAM (Sioux Falls): I do not know of any subject that there has been so much bunk written about and so much mystery woven around as the subject of thyroid surgery. It is therefore very refreshing to hear a paper like this one, where a man who knows what he is talking about lays down a few common-sense rules that anybody who can understand anything can understand and will appreciate.

The great trouble with a lot of practitioners is, they are thinking of goiter surgery of a generation ago, long before the details were worked out, or the problems con-

nected with it were gotten out of the way. But, as it stands now, it is a pretty simple, straightforward proposition. The surgery of the thyroid is simple enough. That should not give anybody concern at all. It is just as Dr. Knott so aptly said, it is a straightforward, simple affair to a man who knows his anatomy, and has built up a little foundation of experience along general surgical lines. That is not the crux of the situation at all. The crux comes in in the matter of using the proper amount of judgment as to which cases should be operated on and which should not; and I am frank to say that a great many cases go unoperated on and neglected in that way.—very many more than the converse.

There is one class of cases—I am sorry that I did not hear quite all of the doctor's paper for he may have covered this point quite fully—there is one class of cases I think we should all keep our eyes open for in order to avoid them, because they are not surgical cases. That class is the so-called adolescent or physical types of goiter,—cases that happen in young women in early womanhood. It is at this very age when these patients generally come in, because young women at that age are naturally very sensitive, and, if they notice an increase or enlargement in the size of the neck, they are sure to want it operated on, where a man or an older woman who may rightly need a goiter operation, might want to avoid it. These young women, in nine cases out of ten, do not need any operation at all. It is a purely physiological condition. There is some connection, I do not know just what it is, between the thyroid function and the pelvic organs. There is something about the development of the one which coincides with the development of the other. That is exactly the class of cases to leave alone, because they will take care of themselves in the great majority of cases. Those that persist and stay goiterous past the adolescent stage can easily be operated on later. The cases that surgeons and anybody who is operating on the thyroid dislike to see, are the cases with only slight enlargement of the thyroid, but a tremendous amount of thyroid intoxication,—cases in which there is not a very large goiter, and therefore we have considerable trouble to persuade such patients that they have one at all, but at the same time they have all the rest of the clinical symptoms. These patients are profoundly intoxicated with an excess of thyroid secretion. Those are the cases in which operation is urgently demanded, but very frequently they are overlooked or neglected.

In my opinion, the whole thing summed up in a nutshell is to decide which are the proper cases for surgical treatment. The rest is easy, and it seems to me that with the surgical anatomy of the thyroid region so little subject to variation as it is, and so easy of access, there is no real difficulty about it, and why a man who will go into the abdomen with its untold possibilities of trouble will leave a goiter alone simply because of the supposed danger, is more than I can understand. Operations on ordinary goiters are far easier and more straightforward, and the results in the long run are very much better. (Applause.)

DR. KNOTT (closing): All goiters should be treated medically for a certain period of time. When you discover that medical treatment is not accomplishing anything, and that the patient is getting worse or remaining *in statu quo*, then it is time to do something.



# THE JOURNAL-LANCET

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MARCH 1, 1916

## A NEW MEDICAL JOURNAL WANTED

On another page of this issue we print the address of the retiring president of the Hennepin County Medical Society, which sets forth at least some of the problems pressing for answer in all the county and district societies in the group of states of which the Twin Cities are the medical center.

One of Dr. Farr's recommendations has special interest to all men who view the profession of the Northwest as a whole, that is, as a distinct unit. This recommendation is, that Hennepin, Ramsey, and one or two other counties of Minnesota establish a medical journal which shall be "conducted by medical men," and shall publish the transactions and papers of such societies.

It has long been noted that more people are influenced by a catchword than by reason or experience; and we have come to believe that one of the dangerous catchwords which seem to obsess not a few medical men is this group of words "owned and published by medical men."

Let us look for a moment at Dr. Farr's recommendation in the light of experience.

There are three, and only three, well-defined groups of states in this country each of which has a common and recognized commercial and

medical center: the Southwest, with St. Louis as its center; the Pacific Coast, with San Francisco as its center; and the Northwest, with Minneapolis and St. Paul as its center. Each of these groups of states has drawn from the eastern states and the eastern medical schools many of their brightest men; and it cannot, we think, be invidious to say that the Northwest has drawn so large a portion of these men that it is today superior, professionally, to the other two groups of states.

The Southwest is not so homogenous; it is much older, and possesses a large group of old-time physicians who have opposed all medical progress; lacking in wealth, it has not largely attracted the younger medical men from the medical centers, including even its own; and it has not maintained a high standard of license requirements. The Pacific Coast, from a medical point of view, is confined almost exclusively to the State of California, because its neighboring states have equal or better facilities of communication with other sections; consequently many medical men in such states have little or no interest in San Francisco as a medical center.

The Northwest, on the other hand, is indeed unique: its whole population is new, and comes from the best parts of the world; its wealth is marvelous and is very uniformly distributed; its standard of licensure, from an early day, made even our best medical schools change their curricula, lengthen their terms, and advance their standards, in order that their graduates should be eligible to practice here; there is but one full-term medical school in the territory, the School of Medicine of the University of Minnesota, and it has the highest official rank among American medical schools; and, finally, the lines of transportation throughout the territory center in the Twin Cities.

With this general view of these fields, let us consider their opportunities and their needs for medical journals. Surely, it requires no high degree of mental acumen to determine what kind of journal, or journals, each can maintain, and should maintain, in the interest of the medical profession and the general public. It is plain enough, too, that the kinds of medical journals that can be maintained in the fields under consideration fall readily into three groups:

1. A purely scientific journal, publishing only the best material obtainable in its field, with a few contributions from outside men. Such a journal would at first reject many tendered arti-

cles, and thus cause heartaches and jealousies, and, in the end, would publish few articles which were not solicited.

2. A nondescript journal accepting all contributions offered, and copying not a few, generally without credit to the journal originally publishing them. Such a journal would possess neither interest nor value to any class, and would have an exceedingly limited circulation outside of its group of collaborating editors.

3. A journal publishing the transactions and papers of one or more states, with well-maintained departments of correspondence, news, editorials, etc., devoted to the interests of the medical men in such states.

Neither of the three sections named above maintains a paper that can be classified in Group 1. The Inter-State Journal, of St. Louis, comes the nearest to it, for its articles maintain a high degree of excellence; but it is not merely a sectional journal, much less a Southwestern journal, for it finds subscribers as readily, possibly even more so, in Minnesota as in Missouri. The Pacific Coast, with the limitations already mentioned, has an excellent state journal in California, and probably could maintain only with difficulty a journal worthy to be put in Group 1. The Northwest could easily, and will some day, have an exclusively scientific journal, whose circulation will not be confined to this section or even to this country.

If the above analysis of the kinds of medical journals possible and desirable in the fields under consideration is correct, what could be expected of such a journal as Dr. Farr recommends? In the first place, if the members of the societies establishing it were at all loyal to it, much of the best medical literature of the state in which it was published would be forever lost to the medical profession; and, in the face of such certain loss, the best men in such societies would absolutely refuse to write papers for early and permanent interment. As Dr. Farr has publicly recommended the establishment of such a journal, we believe we are justified in asking him thus publicly if he would have published in such a journal his paper on "Cleft-Palate," upon the preparation and illustration of which he doubtless spent many months? Our readers will recall that this paper was published in THE JOURNAL-LANCET.

Dr. Farr, in his presidential address, went a step further, and, as we believe, in the wrong direction; and we may rightfully challenge him again on this point. He recommended that the

journal be established by the three or four leading societies of Minnesota, and be conducted by medical men. And why? To be sure we do not know; but it is fair to assume that his observations have led him to believe this the better way. That it is ideally the better way, no one will deny; that it is practically the better way needs at least some concrete evidence, and we call for it.

The work of producing a medical journal that shall be a credit to the medical profession requires divers talents and no small amount of expert work. If the editor is to be selected by a body of medical men, and not self-chosen, he will, probably without exception and for obvious reasons, be a man of somewhat mature years, and if he possesses sufficient ability to make even an "average" editor, he will therefore have considerable practice, which means that he will have little time to devote, gratuitously, to the laborious and time-consuming work of "editing" every word and line of manuscript, and proof-reading the same, which enter into "his" journal. It is quite conceivable that he may not have had the special training necessary to do this work; and if he has not, woe to the journal, and woe to the contributor who, through his own carelessness or that of his stenographer, makes even a few, to say nothing of the possible many (say, a hundred or a thousand) errors that absolutely do creep into medical manuscripts.

Again we ask Dr. Farr, with the sincere hope that he will reply, would he have been willing to submit his presidential address to such an editor for its final preparation for the type-setter and the printer? We submit this question to Dr. Farr because he recommends the publication of such a journal, and would, presumably, have all the minor medical journals conducted by medical men, with or without expert knowledge in the lines indicated. The question is equally pertinent to practically every man who writes a paper or discusses one; but it cannot properly be propounded to any man until he advocates such a mode of putting his own matter and that of his neighbor into a journal so conducted.

#### BABY WEEK

A state-wide baby week, including March 4 to March 11, has been set aside to be observed in every community of the state, and this campaign should interest every man, woman, and child who is interested in babies. It is proposed to have meetings in the public schools, at which teachers, nurses, and physicians, will give short

talks on the subject of the baby, children will read compositions; Little Mothers' leagues will give demonstrations; health playlets will be given; etc. Such programs can easily be given in rural school districts as well as in larger communities. Then, too, there is a baby Sabbath to be celebrated in the churches, in which talks will be given by the clergy, to which there are added exercises in the Sunday School. It is also proposed to have a mass meeting, presided over by some influential person, in which short talks and general discussions are on the program. This will probably interest social workers as well as other organizers. Physicians, of course, should be present at such meetings and give their views on the subject of the baby.

The Minnesota Public Health Association will assist local people who are interested. They will give detailed programs on how to conduct campaigns; distribute pamphlets on the care of the baby; and furnish articles for the papers. This is a matter in which the federated clubs of the state should take an active interest, and should supervise the dates upon which the baby is a subject of discussion.

This is all an educational plan, and it deserves more consideration than appears on the surface. Fifty thousand babies are found in Minnesota homes each year; one out of each thirteen dies before it reaches its first birthday, and one out of each nine dies before it reaches the age of five. These conditions are due to ignorance or indifference on the part of the mother and on the part of the community, and only by educational campaigns, by the activity of the State Board of Health and the local health officers, can the lives of many of these children be saved.

## BOOK NOTICES

**SPEAKING OF OPERATIONS.** By Irvin S. Cobb. New York: George H. Doran Company. Price, 50 cents.

This is a very funny book on a very serious subject. It contains a laugh and a lesson for every physician and especially for every surgeon.

The illustrations are very well done; and the book will furnish anyone a pleasant half hour, and the dose may be repeated occasionally with good effect.

**GENERAL MEDICINE**, edited by Billings and Salisbury. Vol. vi. Price of volume, \$1.50; series of 10 volumes, \$10. The Year Book Publishers, Chicago, Ill.

The Practical Medicine Series has already proven its worth, and this volume comes up to the former editions.

Volume vi considers infectious diseases, diseases of the mouth and esophagus, diseases of the stomach, dis-

eases of the intestines, diseases of the liver and gall bladder, and diseases of the pancreas. It gives short reviews of the more important literature for the previous year, and, without going into detail, gives the essentials. It is well written, and the editors frequently parenthetically give their opinion upon the topic under consideration.

To the man who wishes to know the digest of the recent medical literature, but who cannot afford the time for postgraduate study or the laborious task of sifting a voluminous and often worthless literature, it will be of most service. The bibliography, alone, is well worth the price.

—GARDNER.

**SKIN AND VENEREAL DISEASES**, edited by Oliver S. Ormsby, M. D. Vol. ix of the Practical Medicine Series of 1915. Price of this volume, \$1.35. Price of the series of 10 volumes, \$10.00. The Year Book Publishers, Chicago, Ill.

This volume of the series brings up to date the literature on skin, syphilis, and gonorrhea. The part devoted to skin gives abstracts of the most important papers of the year, and a chapter on therapy. Of special interest are the pages devoted to self-inflicted eruptions, Rosens's work on etiology of herpes zoster, skin atrophies, general telangiectasia, and ring-worm.

Under treatment space is given largely to radium and x-ray; a very complete resumé of the technic of x-ray treatment of ring-worm of the scalp is included.

A large part of the chapter on syphilis is very properly devoted to diagnostic methods.

There are only a few illustrations, but they are above the average. The publishers are to be congratulated on their choice of Dr. Ormsby as editor, who has made a volume which is not only of value to the general practitioner, but one which will save the dermatologist a deal of clipping, abstracting, and filing.

—IRVINE.

**DISEASES OF THE SKIN.** By Henry H. Hazen, M. D., Professor of Dermatology in the Medical Department of Georgetown University; Professor of Dermatology in the Medical Department of Harvard University; sometime Assistant in Dermatology in the Johns Hopkins University; member of the American Dermatological Association. St. Louis: C. V. Mosby Co. Price, \$4.00.

This book is written clearly and concisely, and the subject is presented in an attractive manner. Dr. Hazen follows the plan of all American writers in prefacing his work by the usual chapters on the anatomy and physiology of the skin, followed by others on etiology, general pathology, diagnosis, treatment, and hygiene.

The chapter on treatment deals with the various drugs employed in dermatology, and also takes up the newer methods of treatment, such as x-ray, radium, carbon dioxide, electrolysis, and phototherapy.

Most of the chapter on hygiene is borrowed from Jackson and McMurtry's book, "Disease of the Hair."

The main body of the work is classified as much as possible according to etiology, and is divided into several groups as follows: "Congenital Affections"; "Diseases Due to Local Irritations"; "Diseases Due to Local Bacterial Infection"; "Infections Due to Vegetable Parasites"; "Infections Due to Animal Parasites"; "Infections Due to Unknown Origin"; "Infections Due to Toxemias"; "Diseases Due to Nerve Changes"; "New Growths, Malignant and Benign."

The common diseases are described fully, and the text



contains numerous illustrations. The histopathology is easily grasped. The discussion of some of the rare dermatoses is dismissed in a few words.

The book forms a valuable reference work for the busy practitioner and undergraduate medical student.

—BOREEN.

THE INTERNATIONAL CLINICS. Philadelphia: J. B. Lippincott Co. Price, \$2.00.

Volume four of the 25th series of International Clinics constitutes the 100th volume of the periodical, and completes the 25th year of its existence. In the preface of the first volume it was stated that the aim of the editors was to most carefully select and publish only such lectures as are most instructive and practical to those who are unable to attend a course of clinical instruction, and learn thus directly from the bedside the very latest methods in vogue.

It must be recalled that twenty-five years ago the didactic professor held the chief place, while clinical medicine had by no means achieved the prominent place it holds today.

How efficiently this periodical has carried out its high aims can be attested only by those who have zealously consulted its pages. It has been one of the great educational forces in medicine. Its contributors have been, and continue to be, of the ablest class in all branches, both in this and in foreign countries.

A glimpse at the contents of this, the 100th volume, and the names of the contributors will at once impress upon the well-informed physician how well the high character of the periodical has continued to be maintained.

From the editor's remarks I quote the following: "It must suffice to say that the one hundred volumes show well over a thousand different contributors, and take up three times the shelf space of Dr. Eliot's Harvard Classics, contain 31,846 pages of reading matter, including the text cuts, 3,043 articles, 5,212 illustrations, and 768 pages of indices. Or, putting it in another way, there has been in each issue an average of 318 pages, of 52 illustrations, of 30 articles, and of 8 pages of indices."

There is not space to review or even to note the articles contained in this number. A glance at the table of contents alone is convincing. —STUART (J. H.)

## REPORTS OF SOCIETIES

### THE MINNESOTA NEUROLOGICAL SOCIETY

The Society held the first meeting of the year in St. Paul, January 17.

Drs. Riggs, Hamilton, and Sweeney were appointed a committee to draw up resolutions concerning the death of Dr. Dunning.

Dr. C. R. Ball demonstrated a positive luetin reaction, and discussed its significance and scope. He also reported on a number of cases of disseminated sclerosis and syphilis of the brain cortex. These cases were reported chiefly because they illustrate so well the importance of both

clinical findings and spinal fluid reactions in making a positive diagnosis. In none of these cases were the clinical symptoms nor the spinal fluid reactions sufficient to form a definite conclusion, but taken together the one supplemented the other, and converted doubtful diagnoses into positive ones. The fact was emphasized that a negative Wassermann in the blood does not exclude syphilis, but that it is not so clearly realized that a negative Wassermann in the spinal fluid, even in extensive syphilitic disease in the nervous system, occurs not infrequently. The aid of the colloidal gold curve in making a diagnosis was also brought out in one of these cases.

Dr. E. M. Hammes presented the following case of Huntington's chorea in a child:

Male; 11 years old; schoolboy.

Family history, maternal negative; father committed suicide at 37, at 26 developed Huntington's chorea, and at 34 developed mental symptoms; uncle living developed Huntington's chorea at 27; grandmother developed Huntington's chorea at 27; great aunt had developed Huntington's chorea, age of onset unknown; great grandmother developed Huntington's chorea, age of onset unknown. Patient has four brothers, living and well. Another developed twitchings at fourth month and died at age of 14 months.

Personal history: Negative. Birth and development, normal. Present complaint: At age of 7 mother noticed slight irregular jerking in both shoulder muscles. This gradually grew worse and involved all four extremities. At age of 10 he had great difficulty in walking. At present all the voluntary muscles are affected and voluntary movements are increased.

Physical and neurological examination negative. Urine normal. Hemog., 84%. R. B. C., 4,800,000. Leucocytes, 7,900. Wassermann in blood negative. Spinal fluid: pressure normal, globulin test negative, 3 lymphocytes per cu. mm. Wassermann negative. Colloidal gold test gave no curve.

The child is about the mental age of seven according to the Binet-Simon test.

A. W. MORRISON, M. D., Secretary.

### MINNESOTA ACADEMY OF MEDICINE

The regular monthly meeting was held at the Town and Country club, February 2, 1916.

Following the usual dinner, the meeting was called to order by the president, Dr. Geo. D. Head.

The minutes of the January meeting were read and approved.

The matter of changing the date of meeting was submitted to the vote of the Academy, and adopted. Article VI of the Constitution now reads:

"The regular meetings shall be held alternately in the cities of Minneapolis and St. Paul on the second Wednesday of each month, excepting

June, July and August; and the annual meeting on the second Wednesday in September."

The amendment makes the date of meeting one week later in the month and fixes the annual meeting in September instead of October.

The following case was reported by Dr. Gustav Schwyzer:

Mrs. S., 26 years of age, was operated upon December 1, 1909; the appendix removed, the uterus freed of adhesions, the right ovary which was cystic, removed with its tube, the uterus suspended. On April 25, 1914, she again went under operation; this time for extra-uterine pregnancy. The abdomen was found full of clotted blood, a quart at least. Pregnancy was of the left tube, the tumorous mass extending well into the horn of the uterus. In size, the embryo showed a development of two and one-half months; its head was as large as a fifty-cent piece. The tube was excised; the ovary left. Speedy recovery.

The interesting feature of Dr. Schwyzer's case was brought out in the sequel. Dr. Litzenberg reported that he delivered the same woman of a normal baby girl less than seventeen months later.

A number of those present added experiences of a similar kind even more unexplainable than the above.

Dr. Moore read a paper on "Incomplete Operations," which was fully discussed by Doctors Schwyzer and Colvin.

Dr. Farr concluded the program with the presentation of his thesis, "Narco-Local Anesthesia." Numerous mounted photographs and stereopticon slides were shown in illustrating the technic of his methods. A free discussion followed, in which nearly everyone took part.

Thirty-one members and one visitor were present. FRED E. LEAVITT, M. D., Secretary.

#### HENNEPIN COUNTY MEDICAL SOCIETY

The regular meeting of the Society was held February 7, in the Library Rooms.

President Cross was in the chair and fifty-seven were present.

Dr. R. E. Farr presented a case of regurgitation of food.

Reports were heard from the committees upon the President's address; Necrology; and Health and Hospitals.

Doctors George W. Kirmse and J. C. Sessions were elected to membership.

The program was furnished by the Department of Pathology and Bacteriology of the University of Minnesota, and was as follows:

"The Pathology of Tetanus and Its Relation to Treatment," by Dr. H. E. Robertson. "The

Effect of Subcutaneous Injections of Magnesium Sulphate and the Antidote," (demonstrated) by Dr. Margaret Warwick. "Cystic Disease of the Breasts," by Dr. E. T. Bell. "Experimental Streptococcic Myocarditis," by Dr. A. T. Henrici. All papers were discussed together.

Beginning with the March meeting, an *abstract* of each paper must be in the hands of the Secretary by the 15th of the month before date on which it is to be read, to be printed in the monthly bulletin, and the paper itself must be in his hands one week before the meeting at which it is to be read. All papers read are the property of the Society, and they are to be kept on file in a bound volume.

And physician living outside of Minneapolis and not a member of the Hennepin County Medical Society may receive bulletins of meetings by sending his name and address and 10 cents for postage to the Secretary, 301 Physicians & Surgeons Building, Minneapolis.

S. R. MAXEINER, M. D., Secretary.

#### OLMSTED COUNTY MEDICAL SOCIETY

The regular February meeting of the Society was held in the assembly room of the Mayo Clinic. Dr. H. W. Meyerding presented a case of "Sporotrichosis." Dr. W. D. Sheldon read a paper on "Diagnosis of Tabes." This paper was discussed from a serological standpoint by Dr. Sanford. Dr. C. H. Mayo gave an interesting travelogue. The next regular meeting will be held the second Wednesday in April.

H. W. MEYERDING, M. D. Secretary.

#### NICOLLET-LE SUEUR COUNTY MEDICAL SOCIETY

The Annual Meeting of the Society was held at Le Sueur, Minn., February 1, 1916. Dr. F. A. Dodge and wife entertained the Society.

Officers were elected as follows: President, Dr. R. G. Olson, Nicollet; secretary, Dr. J. E. Le Clerc, Le Sueur; treasurer, Dr. D. W. McDougald, Le Sueur; delegate, Dr. J. W. Daniels; alternate, Dr. H. A. Hartung.

Dr. G. W. McIntyre read a paper on "Trichinosis." Dr. H. A. Hartung read a paper on "Graves' Disease."

The Committee on publishing the papers and writing of the late Dr. H. A. Tomlinson reported definite work accomplished and many subscriptions coming in for the proposed book. Dr. H. D. Valin, St. Peter, is Chairman of the Committee.

F. P. STRATHERN, M. D.,  
Ex-Secretary.

## NEWS ITEMS

Barnesville is planning a hospital.

Dr. A. A. Campbell, of St. Paul, is located in Cylon, Wis.

There are said to be over 300 cases of measles in Minneapolis.

Dr. F. O. Brigham, of Ross, N. D., has moved to Stanley, N. D.

Dr. G. R. Christie, of Long Prairie, is spending the winter in Florida.

Dr. J. C. Clark, of Mt. Vernon, S. D., has moved to Sioux Falls, S. D.

Dr. O. N. Bossingham, formerly of Ringstad, Iowa, has located at Marshall.

Thief River Falls is to have a county branch of the Minnesota Public Health Association.

Dr. John Fawcett, a former resident of St. Paul, died the first of February in Portland, Ore.

A force of 240 solicitors is at work in Duluth collecting funds for the St. Mary's Hospital Fund.

Dr. J. T. Leland, of Herman, is spending some time as externe at the Fairview Hospital at Minneapolis.

An eighty-room building to cost \$100,000, will be constructed for the Midway General Hospital of St. Paul.

Dr. L. L. Bennett, for many years a practicing physician of Owatonna, but of late a banker, died at his home February 3.

Dr. A. J. Paulson, of Flaxton, N. D., who has spent several months in postgraduate work in Chicago, is now at Rochester, Minn.

Dr. Alanson G. Aldrich, of Minneapolis, died at his home in Anoka February 19, at the age of 60 years. Death was due to pneumonia.

Over \$200 was made for charity at an immense card party held in the Armory by the Women's Auxiliary of the St. Louis County Medical Society.

Dr. R. H. Monahan and associates, of International Falls, have sold the Northern Minnesota Hospital to the Eudestine Sisters, an eastern order of the Catholic Church.

Dr. C. W. Williams, of Minneapolis, died at his home February 23, at the age of 52. He was

a graduate of Northwestern, and had been a resident of Minneapolis for 25 years.

Dr. Harold Stone, of Minneapolis, a graduate of the Medical School of the University of Minnesota, and a recent member of the American Ambulance Service at Paris, has located at Wayzata.

The Methodists of Duluth have opened a dispensary in that city. A fee of ten cents will be charged for each patient and local druggists will fill prescriptions at cost. The dispensary will be open under the care of physicians every day except Sunday.

It has been suggested that the courses in the Department of Medicine at the University of Minnesota be arranged for three terms of four months each, a plan which would make possible an additional enrollment of forty students, each student taking his choice of two terms.

Dr. H. M. Bracken, Secretary of the Minnesota State Board of Health, attended the hearing of the Senate Committee on Public Health, held at Washington, February 15. A bill is before the committee which seeks to establish a Federal Leprosarium. At present there are in Minnesota eight cases of leprosy.

The Rice County Medical Society held its annual meeting January 31 at Faribault. Ten members were present, and two new members, Dr. W. N. Theissen, of Faribault, and Dr. Henry Watson, of China, were elected to membership. Officers were elected as follows: President, Dr. A. C. Rogers, Faribault; vice-president, Dr. F. J. Lexa, Lonsdale; secretary, Dr. F. U. Davis, Faribault.

The American Medical Golfing Association has completed its organization with the following directors: President, Dr. Wendell C. Phillips, New York; vice-president, Dr. James Eaves; secretary, Dr. Will Walter, Chicago. All fellows of the A. M. A. who enroll before April 1, 1916, become charter members. The second tournament of the Association will be held in Detroit in June. Full information may be obtained from the secretary.

The Stearns-Benton County Medical Society held its quarterly meeting at St. Cloud, February 17. Dr. A. C. Strachauer, of Minneapolis, gave a very interesting talk on "Fractures." Dr. Geo. D. Rice, of St. Cloud, read a paper on "Some Points on Appendicitis," and Dr. C. S. Sutton, of St. Cloud, gave a demonstration of a



gall-bladder. A thorough discussion followed the papers.

The Committee on Public Health of the State Conference of Charities and Correction is as follows: Dr. Justus Ohage, St. Paul, Chairman; Dr. A. J. Chesley and Dr. H. W. Cook, Minneapolis; Dr. H. L. Taylor, St. Paul; Dr. J. A. DuBois, Sauk Center; and Mrs. Francis Keuster, St. Paul. It is the plan of the committee to center its efforts on the prevention of the ills of middle and later life, rather than on the prevention of tuberculosis.

There are 1,727 communities considering some preparation for Baby Week, according to the Children's Bureau of the United States Department of Labor. This report is several days old and so of course is not complete. In its suggestions for Baby Week observance the Children's Bureau lays special emphasis on the opportunity it affords for extending permanent work for infant welfare, such as infant welfare stations, visiting nursing and instruction for prospective mothers, city inspection of milk, special work for the prevention of blindness, and little mothers' classes and home nursing instruction for school girls in the upper grades.

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A graduate nurse with previous experience desires a position in a physician's office. Can furnish good references. Address 300, care of this office.

#### APPARATUS FOR SALE

A \$125 Betz body hot air apparatus, gas and gasoline heat. Used 6 times. Can't see it has been used. Price, \$50. Dr. L. Almlov, Cooperstown, N. D.

#### ASSISTANT WANTED

Surgical assistant in a German Protestant hospital in the Northwest. Must have served one or more years first class internship; live in hospital; good salary. Address 304, care of this office.

#### LOCATION OFFERED

For particulars as to a good opening for a physician, address C. N. Taber, Reynolds, N. D.

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A nice large office in a modern building located at the corner of 27th Ave. So. and Lake St., Minneapolis. This is a transfer point and is very busy. Apply at the Ha Ha Candy store at above address.

#### OFFICE FOR RENT

After March 31st my office at Chicago Ave. and Lake St. will be for rent, as I am taking a downtown office. This is an excellent location for some one wanting an outside office. Robert Williams, M. D.

#### ASSISTANT WANTED

A young unmarried licensed physician to serve me at First Aid Hospital of Minn. Steel Co., Morgan Park, Duluth, Minn. Salary, \$100. Chance for private practice also. Address W. H. Magie, M. D., 401 Sellwood Bldg., Duluth, Minn.

#### PRACTICE FOR SALE

Will sell or rent my property and practice of \$3,000 to \$4,000 per year in a good railroad town in Minnesota. Nearest competition 9 to 13 miles. Property consists of a good house, garage, and a good office. Four mails a day. Address 306, care of this office.

#### LOCATION DESIRED

A middle aged Norwegian physician, with great experience in general practice, would like to associate himself with a capable physician in a city in North Dakota, Minnesota, or Wisconsin, who has a well established business with hospital opportunities. He is temperate and industrious. Address 310, care of this office.

#### PRACTICE FOR SALE

A first class western North Dakota practice in a country village for sale to a physician who can do surgery and is a successful obstetrician. It will easily pay \$5,000 yearly. Competition light; west 18 miles, north 20 miles, east and south 28 miles. Collections 100%. Best of reasons for selling. For a sober, hard working married man there is money to be made here. Address 315, care of this office.

#### FOR SALE

South Dakota practice of \$3,000 to \$3,500 yearly, in best section (southeastern) of state. Town 500, excellent business establishments, school, churches, electric lights, etc. Farmers prosperous; collections always good, one competitor; outside competition 22-18-14-12 miles. Good roads. Price, \$500.00 cash, includes drugs, considerable equipment and practice. Immediate possession. Address 302, care of this office.

#### DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

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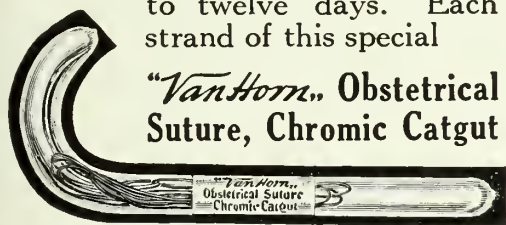
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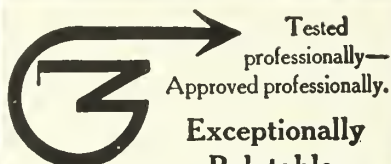
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### JEWELL NURSERY, LAKE CITY, MINN.

This nursery has been doing business for over fifty years in all sections of the country. It has always conducted its service on the very highest standard of integrity. Its stock is large and complete, so you can depend upon the very best fruit trees, vines, shrubs, and plants being sent you promptly and at prices that will be guaranteed. Send for one of the new catalogs, which will be mailed you free of charge.

### MESSRS. SHARP & SMITH

If there are any readers of *THE JOURNAL-LANCET* who do not know of the high standing of the instrument and general surgical and hospital supply house of Sharp & Smith, of Chicago, we urge such men to at once make their acquaintance, for they will find this house ready to supply all their wants in high-grade goods and at the right prices, and to do so in a manner that makes dealing with them a pleasure.

It is a pleasure for us to commend such a house to our readers.

### POTTENGER SANATORIUM

This sanatorium, located at Monrovia, California, and under the direct charge of Dr. Pottenger, who is well known to all the leading medical men of the United States, is a very popular institution at all seasons of the year. Readers of the *JOURNAL-LANCET* who are planning a visit to the coast should arrange their route so they may spend a few days with Dr. Pottenger at his sanatorium. The doctor is always pleased to correspond with any persons in regard to information they may desire, and his booklet can be had on request.

### OCONOMOWOC SANITARIUM

This well equipped sanitarium is but a short distance from the railway station at Oconomowoc, Wisconsin. Located in a beautiful grove with fine scenery and drives, it is just the place for patients who require absolute rest. It is modern in every respect, built of brick with steam heat and having the best of ventilation.

Dr. Ackley is the Medical Director, and gives his personal attention to each patient on his arrival, looking after each little detail, which adds so much to his care and comfort. Their prices are very reasonable, considering the excellent service rendered.

### DREER S SEEDS, PHILADELPHIA

This is the season when the readers of the *JOURNAL-LANCET* should be planning on ordering their seeds, plants, shrubs, etc., for the coming summer. The very name of "Dreer" is a sufficient guarantee that any order that you may place with this company will be filled with goods of the very highest grade, packed with great care and personal attention. We suggest that you send

your orders early, as the rush will soon be at hand, and it is better to have the seeds on hand for early use. Their catalog will give you valuable information in regard to both the garden and field growing of seeds and also the care of plants and shrubs. The catalog will be mailed free on application.

### QUAKER OATS

We do not hesitate to assert that Quaker Oats properly cooked is the best breakfast food ever made from cereals, provided it is given to the right persons. The right persons are the young and old of both sexes who have sense enough to take exercise. Quaker Oats cooked over night in a fireless cooker, or vigorously cooked two or three hours in a double boiler, has an unsurpassed flavor; and the people, almost without exception, who have been guests in the writer's family have given high praise to our Quaker Oats, and for the reason that this delicious food is always well cooked in the writer's home.

The Scotch know the secret, and they never tire of oat-meal. Has the world ever produced a more vigorous race?

### THE HUDSON SANATORIUM

The history of The Sanatorium at Hudson, Wisconsin, tells a story with a lesson never to be forgotten or overlooked, and the lesson is, that neither a college nor a sanatorium can meet its high aims without a man at the head of a body of men and women at its head. Buildings and natural surroundings are very helpful to either institution, but the essential, the indispensable thing is the staff.

The Hudson Sanatorium illustrates this. It has a splendid building located in an ideal spot, on the bank of the Willow River in the beautiful little city of Hudson, an hour's ride from St. Paul.

On several occasions the Sanatorium has been in the hands of men who were not to the manor born, and it has suffered. Some years ago it came into the right hand, the hand of Dr. E. B. Bradford, and it soon had a "waiting list." Dr. Bradford was called to another field and the effect of his absence was soon felt. Dr. Bradford is back again, and to remain. The change is at once seen, and The Sanatorium will soon be full of satisfied patients. It is a charming spot for nervous patients, and those with mild mental trouble, as well as for the drug and alcoholic addicts who want to be in a secluded and high-grade home institution.

### ESTABLISHMENT OF A DEPARTMENT OF HYGIENE, SANITATION, AND EPIDEMIOLOGY

The H. K. Mulford Company announces the establishment of a department of Sanitation and Epidemiology, under the executive management of Thomas W. Jackson, M. D., expert in preventive medicine, sanitation and the study and control of epidemic diseases.

The most important subjects before the American people at the present time relate to the public health. Work in this field is frequently beyond the reach of the existing health and sanitary departments of the various municipalities and smaller towns, on account of limited appropriations.

The department does not propose to enter into competition with the constituted public health authorities, local, state, or federal, but to aid and assist these authorities in every possible way. The work is essentially one

of service and education, and will be developed along these lines. The resources and equipment of the Mulford Laboratories, Chemical and Bacteriological, will be utilized, thus placing at the disposal of the new department the entire laboratory facilities and expert services of the H. K. Mulford Company.

### LAVORIS

The basis of Lavoris is zinc chloride, which is combined in a pleasing and permanent form, with menthol and other antiseptics, thus producing one of the most efficient remedies in the treatment of the mucous membranes known to the medical profession.

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The effect of zinc chloride upon burns or scalds is known to all physicians; and we believe Lavoris combines the zinc chloride with other chemicals to produce results not obtainable by the zinc chloride alone.

The Lavoris Chemical Company will be glad to send samples to any dentist or physician; and no statements will be made by the company which the experience of the physician will not prove to be true.

### NEW THEORY OF HYGIENE GETS BIG PRACTICAL BOOST

Quick and practical response to important pronouncements of scientific theory is characteristic of today. Formerly doctors and other scientists usually knew things for a generation before the public paid attention.

A fine illustration of the modern tendency is found

in a general order to trainmen issued by the General Superintendent of the Union Pacific system. This order warns against the overheating of cars and requires that certain temperatures be maintained exactly for the sake of passengers' health.

It is less than two years since a scientist made a series of experiments which proved to medical authorities that high temperatures were more injurious to health than lack of fresh air—yet here is this new and important theory already in practice and on an important scale.

Following is the text of the order issued to trainmen by General Superintendent W. M. Jeffers of the Union Pacific system:

"All sleepers, chair cars and coaches operated over Union Pacific lines are equipped with ventilating systems by which an adequate supply of fresh air is provided.

"Cars must be well ventilated at all times and not allowed to become too warm, or overheated.

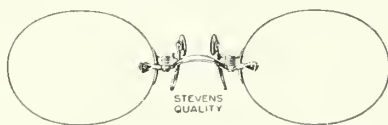
"High temperature is more detrimental to health than lack of fresh air.

"The following temperatures must be maintained during the cool season:

"Sleepers: Days, 70°, Nights, 60°.

"Chair cars and coaches: Days and nights, 70°."

Few travelers have ever found trains too cool. Steam heats so readily, and the space in the train is relatively so small, that errors in temperature regulation are almost invariably on the side of *too much* heat. This has been true even of railroads in the far north. Temperatures outside a train, in the winter time, have little to do with comfort inside. The whole question hinges on the efficiency which trainmen display in using the heating and ventilating systems.



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# THE JOURNAL-~~L~~ANCET

The Journal of the Minnesota State Medical Association  
and Official Organ of the  
North Dakota and South Dakota State Medical Associations

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VOL. XXXVI

MINNEAPOLIS, MARCH 15, 1916

No. 6

## THE SANITARY SURVEY OF SCHOOLS BY THE TEACHER\*

By A. A. WHITTEMORE, M. D.

Superintendent of Bowman County Board of Health

BOWMAN, NORTH DAKOTA

It is well known among medical men that at least eighty per cent of all the ills of man, outside of the inherent deficiencies, are absolutely preventable,—most of them by the most simple, sanitary, and hygienic means. As a means to this end, and an important one, nobody, at least in the medical profession, would question the efficacy of the medical inspection of schools.

Our state laws, while recognizing the benefits of medical inspection of schools, have failed to make it compulsory, or even to specify the manner in which it should be done; consequently, medical inspection is not a general practice, except in a few wealthy and progressive counties and cities. Then, too, the necessary expense of an efficient medical inspection in most places makes it prohibitive. In some counties a few generous physicians have done this work without cost; but in no case is there a systematic method of keeping permanent records.

In 1913 a new public-health law was passed in North Dakota, linking the Superintendent of Schools with the Health Department of the county,—a very wise thing to do. But this law is also very incomplete in detail, prescribing no specific methods or duties other than the general supervision of the public health and the care of contagious and infectious diseases; and it does not, as it should, bring into harmony all of the various state activities relative to the public health. This, however, gives the health officer an immense power for good on his own initia-

tive, if he is so minded; but, on the other hand, he may sit down and draw his salary without much exertion.

Now, in order to obtain a practical survey of the schools of the pioneer counties without the necessary expense of a complete medical inspection, the idea of having the teacher make this survey of her school was undertaken in this locality, believing that any teacher, with sufficient intelligence to teach in our public schools, would be able to form a fairly accurate opinion, from her point of view, of the general physical condition of any child who had been under her care for three months or more.

U. S. Bulletin No. 20, Department of Education, has described a similar method used in the hook-worm country in the South. Dr. Ernest B. Hoag, of Minneapolis, has devised a set of about one hundred questions to be answered by the parents, the teacher, and the pupil. I do not know whether they have actually been tried or not, and I know of no place in North Dakota where a similar survey has been made.

All of the questions used in our plan are simple and non-technical from the lay conception of the terms used, which, when considered in their correlation to one another, as well as from their individual value, will give to any physician a fair picture of the average child. This you may easily see for yourselves by a close inspection of the following forms used in this county, though, of course, we now see in the light of the completed experiment a number of places where they could be changed to advantage.

\*Read at the 34th annual meeting of the North Dakota State Medical Association at Bismarck, N. D., May 12 and 13, 1915.



CARD No. 1.  
PHYSICAL INSPECTION

District No. .... Bowman Co., N. D.  
 School No. .... Date ..... 191 ....  
 Name of pupil ..... Age .....  
 Grade ..... Rank in class .....  
 Name of parent .....  
 Address .....  
 Home surroundings .....  
 Nationality .....  
 Does child appear in good health? .....  
 Strong? ..... Full blooded? .....  
 Active in play? ..... Are powers of concentration  
 good, medium or poor? ..... Light or dark com-  
 plexion? ..... Weight? ..... Height? .....  
 Chest measurements: On full inspiration .....  
 (under coat) On full expiration .....  
 Are there any deformities? .....  
 Is pupil neat and clean in personal habits? .....  
 Are there any skin troubles? ..... Or frequent  
 illness? ..... Does pupil take cold often or easily? .....  
 Or frequent headaches? .....  
 Are there lumps or swellings on neck? .....  
 Are either or both tonsils enlarged? .....  
 Teacher ..... Age? .....  
 Years of experience? .....

EYES: Are eyes or lids habitually red or swollen? .....  
 Give smallest print on Vision chart, read  
 with ease at 20 feet distant? ..... Right eye? .....  
 Left eye? ..... Do eyes and head grow weary  
 and tired after study? ..... Is pupil cross-  
 eyed? .....

EARS: Does pupil ever have earache? .....  
 Has matter (pus) or foul odor ever proceeded from  
 either ear? ..... When? .....  
 Does pupil hear an ordinary voice at 20 feet in a  
 quiet room? ..... Right ear? ..... Left ear? .....  
 Is pupil a mouth breather? .....

MOUTH: Are teeth even and perfect? .....  
 Clean? ..... Is eruption of permanent teeth  
 delayed? ..... Is care of  
 teeth taught in school? .....

REMARKS: Teacher write here any suggestions or  
 observations of importance not referred to.

The following card was used for the school  
 buildings and grounds:

CARD No. 2.

SANITARY CONDITION OF SCHOOLS, BOWMAN COUNTY, N. D.

District No. .... School No. .... Date ..... 191 ....  
 Name of Clerk .....  
 Address .....  
 Name of Teacher .....  
 Address .....  
 No. of pupils ..... Grades ..... Size of school  
 room ..... x ..... x ..... Give square feet of  
 light, east ..... west ..... north ..... south .....  
 Are they properly curtained? .....  
 Are seats of proper size and shape for all pupils? .....  
 What direction do they face? ..... How is  
 room heated? ..... How ventilated? .....

Is building well constructed? ..... Sanitary? .....  
 Warm, even temperature? ..... Are floors smooth? .....  
 Joints tight? ..... Painted? .....  
 Oiled? ..... Hard to keep clean? .....  
 Is a sweeping compound used? ..... What kind? .....  
 Are privies fly-proof? ..... Clean? .....  
 Weather tight? ..... Give number .....  
 Are they easily accessible? .....  
 What system is used: Outside? .....  
 Patent sanitary? ..... Flush bowl? .....  
 Are there individual drinking cups? ..... Drink-  
 ing fountain? ..... Paper towels? .....  
 Combs and brushes? ..... Have you wash basin  
 and soap? .....  
 (Please make remarks and suggestions on other side.)

The idea was to select such questions as would,  
 if answered by yes or no, from the lay concep-  
 tion of their meaning, by the average school  
 teacher, give to the health officer the best picture  
 of the physical condition of the average public-  
 school pupil, if he took into consideration their  
 co-relative, as well as their individual, value.

The first two cards, named, respectively,  
 "Physical Inspection" and "Sanitary Condition of  
 Schools," were sent to every school teacher in  
 Bowman county with a letter of explanation and  
 instruction, including a table of the average  
 period for the eruption of the permanent teeth,  
 together with a return card by which the teacher  
 acknowledged the receipt of the blank cards, and,  
 at the same time, the card was so worded as to  
 become, when signed, a sort of pledge that the  
 teacher would fully co-operate in the movement.

The following is the letter, in substance, which  
 was sent to the teacher with the cards, a reading  
 of which will perhaps give more of an insight  
 into the method than anything else that I could  
 say:

Dear Teacher:

The Bowman County Board of Health at their Octo-  
 ber meeting, passed the following order, which is de-  
 signed to take the place, in a measure, of the medical in-  
 spection of schools:

"All teachers in the public schools of Bowman County  
 shall, once each year, at a time and in a manner pre-  
 scribed by the Superintendent of Health and the Super-  
 intendent of Schools, make a careful report to the  
 County Board of Health of the physical condition of all  
 pupils under their care, including that of the teacher, and  
 the sanitary conditions of the school-buildings and sur-  
 roundings."

The Bowman County Board of Health consider this  
 order an important one and it will be strictly enforced.  
 All necessary blanks, vision-chart and instructions are  
 being sent you under separate cover.

We expect to accomplish three things by this method:

1. A fair inexpensive substitute for medical inspec-  
 tion of schools.

2. To bring the teacher into an immediate position

of personal observation of her pupils in a most important phase of their lives, upon which depends, to a large extent, their future usefulness, and to the end that at least gross defects may be corrected.

3. We wish to improve the observation and knowledge of the teacher herself in those physical conditions of children so often neglected, which, if corrected at the proper time, may add a very large per cent to their efficiency and usefulness.

The questions are to be answered by *yes* or *no* when at all possible, or with one or two words, from the standpoint of the teacher and the lay conception of the terms used,—not from the point of view of the doctor. Every question should be answered. When not known, say so. Make every reasonable effort to obtain a correct answer. Every question, besides its individual value, has an important co-relation to other questions.

Have the time of inspection announced a few days ahead with instructions to obtain such information as the children are not likely to have, such as weight, etc.

The day set for this examination is December 1st, and as much of the entire day as will be required for a careful examination should be taken. You are to examine your own pupils. Cards should be filled out for pupils who are absent, and for those who enter late. Those cards should be sent to this office as soon as possible.

I will be pleased to answer any questions upon which you may desire information along the lines of school sanitation.

Respectfully,

To this every teacher responded promptly, the examination being made on the day specified with gratifying results. One thousand pupils, and sixty-six school buildings were inspected by eighty teachers.

From an examination of the cards the following defects were discovered:

Case of general debility the nature of which is not known .....	50
Physical deformities .....	5
Skin diseases .....	29
Frequent illness .....	32
Take cold often and easily.....	189
Have frequent headaches .....	160
Enlarged tonsils .....	171
Enlarged glands of the neck.....	50
Eyes habitually red and swollen.....	28
Defective vision .....	300
Defective ears .....	72
Defective hearing .....	9
Adenoids .....	194
Defective teeth .....	318
Goiter reported .....	6
Total number of children with some defect.....	334

The following card of warning was sent to the parents of the 334 children with defects, the observance of which by the parent would complete a fairly efficient medical inspection of schools of any county at a cost of not to exceed \$50.

CARD OF WARNING SENT TO PARENTS  
STATE OF NORTH DAKOTA  
COUNTY OF BOWMAN

COUNTY BOARD OF HEALTH

Atty. Theo. B. Torkelson, President,  
Bowman, N. D.

Supt. H. O. Saxvik, Vice President,  
Bowman, N. D.

Dr. A. A. Whittemore, Superintendent,  
Bowman, N. D.

Bowman, N. D., ..... 1914.

Dear Sir:

As a result of the "Physical Inspection of Schools," conducted December 1st, it was learned that your..... is suffering from..... from which we suspect that.....he has..... We think it necessary to the best interest of this pupil that you have h..... examined by any physician of your choice, having physician fill in blanks on reverse side of this card and return to teacher at once.

Yours truly,

A. A. WHITTEMORE, Supt.

.....Teacher.

Reverse side of above for medical examination of suspected cases:

MEDICAL EXAMINATION

District No.....

School No.....

Date.....

Name .....

Address .....

Doctor: Please make a complete physical examination of the pupil named above with special reference to condition as given on reverse side of this card. Please explain affirmative answers:

1. Do you find evidence of the following:

- a. Contagious diseases .....
- b. Infectious diseases .....
- c. Adenoids .....
- d. Enlarged tonsils .....
- e. Digestive diseases .....
- f. Diseases of eye.....
- g. Diseases of ear .....
- h. Diseases of nose.....
- i. Diseases of throat.....
- j. Diseases of urinary system.....
- k. Diseases of nervous system.....

2. Or of any other general or special abnormalities interfering with the school life that the teacher and parent should know.

Explanations .....

3. Advice given .....

Signed..... M. D.

These cards of warning are sent to the teacher with the request that she send them to the parent by the child, after a short talk on the advantages of good health, and directing that after the doctor has made his examination the cards are to be returned to her, after which she will send them to the office of the Board of Health to be filed.

You will notice that on one side of the above

card is a letter to the parent, with space for enumeration of the condition found by the teacher and the inference drawn therefrom by the health officer, with the suggestion that he have the child examined by any physician of his choice. This side has the official heading of the Board of Health, in order to make it more impressive. The other side of the card is for the use of the physician and is provided with blanks for the recording of the results of his examination and his treatment or recommendations. The cards will then be returned by the teacher to the health officer, and filed with the original card filled in by the teacher for that pupil. Although there is nothing compulsory about it, some of the parents will take exception to the method at first, but will fall in with the idea when explained to them.

Every teacher in the county, no matter how young or inexperienced she may have been, gave us a perfect picture of the lay conception of the physical condition and general health of every pupil under her charge, besides increasing her own powers of observation and teaching her some of the more important defects which materially affect any child's present or future efficiency.

The teacher, I think, is better enabled to fill the blanks than the average doctor would be in the hurried examination that is usually made; especially is this true if the teacher has had the child under observation for two or three weeks in the ordinary routine school work.

To illustrate: A card filled in as follows gives the doctor a fair picture of adenoids.

Class rank, low.  
Power of concentration, poor.  
Anemic.  
Takes cold often and easily.  
Has had some ear trouble.  
Is a mouth-breather.  
Is not active in play.

As a matter of fact any two or three of the above would arouse suspicion, though the teacher, perhaps, does not know just how much information she has really given.

With very little instruction in the normal schools, or by a short correspondence course conducted by the health officer for the teachers of his county, the teachers could be made so efficient as to make this method rival in real merit a regular medical inspection by a qualified physician. (This is a thought worth turning over in your minds several times. You would be in good company while doing it.)

This method places the responsibility on the parent, where it belongs, instead of on the teacher. It also brings the teacher to a closer point of observation of her pupils, and better equips her to give the child the best possible attention while under her care.

The card for the sanitary inspection of the buildings and grounds can be so constructed as to give most important information. In our case, although the card is less perfectly arranged than the other, it gave the following information, of which we have already taken advantage:

Of the sixty-six school buildings, twenty are poorly lighted, showing in some of them very large per cent of eye-defects. There were also—  
Improperly curtained windows..... 16  
Improper-sized seats for all pupils..... 16  
Improperly heated and ventilated..... 30  
Poorly constructed buildings, not sanitary,  
and hard to heat..... 10  
Rough, dusty floors, hard to clean..... 15

There was not a privy in the county that was fly-proof, and those of twenty-five buildings were neither clean nor weather-tight, all of which has a large influence on the physical, moral, and intellectual efficiency of the pupils.

In the light of the completed experiment we have found many places where the system should be improved, such as altering the form of some of the questions, replacing others entirely, etc.; but, as I wish only to present the general idea, I will leave these defects to be brought out by the discussion.

#### DISCUSSION

DR. P. F. RICE (Cannon Ball): In our county (Sioux) just organized, the County Board of Health is restricted to one choice in making me superintendent, so it devolves upon me to study these questions. I am very much pleased with the ideas set forth in the paper. I think the idea of getting the teacher to make a preliminary survey, and sending a card home to the parents suggesting that they have their actual medical examination made by any physician of their choice, is a very valuable feature.

DR. H. O. ALTNOW (Mandan): The fact that Dr. Whittemore obtained the records of over half the children in his county speaks for the amount of work he has done; and it speaks very well for the value of this system. It certainly is excellent and well-thought out; and I think the results show it.

DR. H. H. HEALY (Grand Forks): I think the doctor is to be really very highly congratulated upon the work he has started, considering the difficulties under which he was laboring, and for a beginning—I was going to say *makeshift*, for it is something like that, but I think it is a splendid work so far. It strikes me though, that, to be of very much use finally, you will have to have some follow-up work. It is all very well



to send a card to the parent stating that we believe his child has adenoids, or tonsillitis, or ring-worm, or lice, or something like that; but the parent feels either negligent or insulted. In the East, where they have a well-formed system of medical school-inspection, where they have physicians to make the examination and nurses to follow up later, they get results. In some of the older states, where they depend on physicians alone, the results are somewhat like one to four to those where they have nurses as well.

Then there is one other point. Each school teacher has a different idea from the other school teacher, and the reports are not apt to be of any great degree of conformity of opinion; and of just how much value it would be I do not know. I might say something about our own experience in Grand Forks County. We have inspection of schools carried on by nurses alone, and we find it works out very well. In the beginning we considered whether we should have a school nurse or whether we should have a full-time physician, or have voluntary physicians, one for each district, each physician within his own natural territory to do the work. We corresponded with all the physicians; and most of them, I am happy to say, volunteered to do the work gratis, but, after talking it over and corresponding, we concluded to get a school nurse, providing we could make the proper arrangement, which we were successful in doing. We have a graduate nurse who got some special training in this line by going around with the city-school nurse. She is young, robust, and energetic, and she has covered the whole county during the school year,—about three thousand pupils. She has created a good deal of interest, but where she has done the most good is in following up the cases in the family. She has found pupils, especially in poor families and where they are somewhat ignorant, who did not care, for some reason or other; and they have been followed up, and an immense amount of good has been done.

As to the records: these are all permanent, and if she goes over the same ground next year, the different conditions can be noted. She has received a salary of \$80 a month, and has traveled with the county superintendent of school as no mileage was provided. The \$80 a month is furnished by the County Board of Commissioners, and I think it is going to work out very well.

DR. G. H. SPIELMAN (Flasher): Dr. Healy's suggestion as to the follow-up system I think is a rather good one. Two years ago I made a personal inspection of about eight districts in Morton County, and found a number of children who were affected with various things, and we had a system of notifying parents and also the school board of our findings; but that is as far as it has gone. The next year I went over the same district, and I found, with the exception of a very few, that there was nothing whatever done with the children. A number of them had bad adenoids, tonsils, and one thing and another; but they did not seem to take any active interest in it, and they thought it was money spent foolishly, as the district was paying the physician for every pupil that was examined. I believe, as the doctor suggested, if we had some follow-up system, by keeping after the parents relative to the children, we might have got better results; but

we did not get any results worth while from the system we had in Morton County.

DR. E. A. NEFF (Emerson): In the discussions there has been nothing said about the sanitary condition of country schools. The sanitary condition in the county that I live in is deplorable. I have filled the office of health officer for my county until this year almost continuously since I have lived in the county, and during that period I have been able to have the schools cleaned once a month. I thought we had a state law which made it compulsory, but our state's attorney told me it was not compulsory. While I believed it was compulsory I could do a good deal better, but I think the law should be amended so as to make it at least compulsory to have the schoolhouse scrubbed and fumigated once every month. Of course, medical inspection has been a great help, too; but I believe the sanitary condition in the rural schools is the first step that should be taken.

DR. H. J. ROWE (Casseltown): This question is one of vital interest to myself, because for the last eight years I have been president of the School Officers' Association of Cass County. We have at our annual meeting between three and four hundred of our school girls, at which time school-inspection, sanitation, hygiene, contagious diseases, and so forth are discussed, with usually a paper by myself. In addition to that we have other speakers who are educating, and who have educated, our school officers, so that there is a rivalry among the people down there. We usually have roll-call of the school officers, at which time, as the roll is called, they get up and report as to what they have done to improve their school conditions, whether or not they have improved their building during the year, and anything they have done in the way of improving the grounds, etc. We find that sort of education has a great deal to do in getting our people up to the pitch so that we can make school-inspection effective. Our county last fall at the Association meeting adopted unanimously a plan of school-inspection. Of course we have not had time since then (December) to carry that out, but it is done in the smaller villages, and in the larger places, and with very good effect. We started first with a number of physicians and dentists doing the examination gratis, because we discovered that they, the children, needed the dentist a good deal worse, as a rule, than the doctor, for very many of our children had defective teeth; and we have co-operated that way. We have got that method started. The intention is to make inspection general throughout the county. If you will notice the word "may" was in the law passed by our last legislature and this meant that school directors *may* order inspection. That word has been changed to "shall," so it is compulsory now under the new law. That is now the law of this state, and will become effective the 1st of July so that we can do more things after that in the way of school-inspection than we could previously. We think it is a good thing; and, while it is a fact that a good many people will not have their children attended to, yet by the education of the directors you will discover that there is a rivalry among the people. When neighbor B buys an automobile, neighbor C is going to have one, too, so if neighbor D's child had had an operation for adenoids, or something of that character, neighbor E's child is going to have the same thing, if there is a chance, because we are great imi-

tators, and we are not going to let our neighbors get ahead of us. It is fashionable to have an operation; you cannot get into first-class society without an operation; and when you meet in social functions, that is one of the topics of conversation that takes up a great deal of time. The people will co-operate when they understand the object of this undertaking to improve the condition of their children; and we can accomplish the change if we persist in it; and I am sure it will be helpful to our children.

There is one thing about the teachers: they are not as well versed with reference to some of these things as they ought to be. Every teacher ought to know that, when a child comes back to school after having been absent on account of illness, and his hands are peeling, the child should be sent home.

Every once in a while a family has scarlet fever, and the children remain home for a short time, and finally come back to school and set the whole neighborhood on fire, and lose a great many children just through such carelessness. A teacher ought to be able to detect a part of such diseases. We make it a rule when a child is sick he has to be sent home, and a physician consulted to see what is the trouble with him, because just a few years ago we had a boy in school, I think in the fourth grade, who never missed a day in school, and he was very anxious and his parents were anxious he should not miss a day. He staid there two or three days so sick he could scarcely hold his head up, and it was from diphtheria. As a result we had thirteen cases of diphtheria, due to the fact they did not want that boy to miss a day of school. The first thing that teacher should have done, if she had had been an ordinary observer, was to have sent the child home, and not let him return until she knew he was all right. A child should not be permitted to return to school who has had a contagious disease without a certificate from the health officers stating he has recovered. That is the plan that ought to be followed for the protection of the people; and we have to educate our people up to that point. They must be educated to see the need of public inspection, because the human race is the greatest asset of this country; and, if we do not take care of the ris-

ing generation and bring them up to the physical perfection that we can by properly taking care of them, it is our own fault. If we want a better generation to follow us, we must start them right from the beginning. Very many of the ear cases by a little attention when the children are young, could be cured. The history of New York and Pennsylvania and other states shows that 95 per cent of those cases could be cured if properly attended to, and yet many are left until they lose their hearing because they are not properly attended to. The great object is to look these things up, and when we find out we have these diseases among our children I do not think there is going to be very much trouble about getting inspection adopted. You will always find a few in every locality who are leaders, and if we get these leaders interested the rest will follow just like sheep.

DR. WHITEMORE (Essayist): The subject has been pretty well covered, and the discussions offered need no reply, except perhaps Dr. Healy's remark, that, in his mind, there might be some doubt as to the efficiency of the method, adding that in his county they had a regular medical inspection, systematic records, and visiting nurses.

The fact that the necessary cost of such inspection is prohibitive is treated in my paper. The method discussed by me was devised for a particular locality, where the cost is a material factor, and not for the more wealthy places where the best and most complete methods are not a burden.

In this instance, I made about twenty-five personal examinations at different times throughout the county; and after comparing them with the reports of the teachers, I was very much pleased with their accuracy.

In applying this method to other localities, I think the form of the cards and of the questions asked, could very well be changed better to conform to local conditions.

Dr. Altnow did not understand me with regard to the number of pupils examined. There are only 1,200 pupils in our county. Reports of 1,000 of these were received up to the time this paper was written. The other 200 came in later.

## SOME ESSENTIAL POINTS IN THE TREATMENT OF CARCINOMA OF THE UTERINE CERVIX\*

By E. W. JONES, M. D.  
MITCHELL, SOUTH DAKOTA

Pathology teaches us that carcinoma of the uterine cervix begins as a limited local disease, and can be cured if the entire area involved is removed. This means that the entire uterus, broad ligaments, tubes, ovaries, pelvic fascia, as much of the vagina as possible, the internal inguinal glands, and all the glands along the iliac arteries, must be removed. This is the so-called block of tissue that must be removed in order to cure the carcinoma.

\*Read at the 34th annual meeting of the South Dakota State Medical Association at Sioux Falls, May 18-20, 1915.

There are a few points that I want to call your attention to in this paper, not that I claim any originality for them, but merely to refresh your memory and help to keep you on the alert for this life-destroying and ever-increasing disease.

The diagnosis of carcinoma of the uterine cervix is difficult, and cannot be made without the aid of a microscopical examination of the suspected tissue. Unfortunately, it does not produce symptoms early in its course, and when we find a case comparatively early it is because our suspicions are aroused by the peculiar condition



of the cervix as we find it in the routine examination of the patient for other things.

These conditions are as follows: a hard indurated cervix with a few papilla-like nodules on the surface that are very friable and bleed easily on the slightest manipulation; a "cauliflower-like" growth protruding from the cervix into the vagina that may fill this cavity entirely; a hard cervix somewhat larger than normal, with excavated and undermined edges, the base of which is covered with friable tissue that bleeds easily; those that have a slight or irregular menstrual flow, that bleed on the slightest manipulation or during the marital relation.

Vaginal examination of last-named cases may show a partial or complete destruction of the cervix and the vagina filled with a fungating, cauliflower-like mass. Any patient that presents any of the above irregularities should be curetted, and the tissue examined microscopically, or a piece excised from the cervix and subjected to a microscopical examination.

If a woman presents herself in your office, and says she is having slight or profuse irregular hemorrhages or menstrual periods, and wants some medicine for it, do not prescribe for her without a vaginal examination, for, if you do, the bleeding may stop for a while, and when you see her again she may have an inoperable carcinoma. Insist on having a vaginal examination, and determine why she should bleed; and frequently you will be surprised to find a cervical carcinoma comparatively early, and a valuable life may be saved by the proper operative procedure.

The extent of the carcinoma is necessarily of prime importance with regard to the operability of the case. Vaginal palpation of the pelvic organs after as much as possible of the neoplasm has been removed with the curet, shows the involvement of the uterus and the surrounding tissue with a reasonable amount of accuracy. Extensive involvement of the vagina and extensive destruction of the cervix, extending into the broad ligament, characterize the case as inoperable.

Palpation in the rectum may show thickening and rigidity of the ligaments, which might make the operation useless, or abdominal palpation may show carcinoma of other organs. The bladder should always be cystoscoped before subjecting the patient to an extensive operation, to see if there is any involvement of that organ. Edema, bullous edema, or distortion of the bladder may show, but unless there is actual involvement of

the bladder mucosa by the carcinomatous process it is not a contra-indication for operation. Cystoscopy is very important, and should never be neglected.

When the abdomen is opened we may find an absolute contra-indication for operation. Small metastatic tumors in the liver, carcinomatous adhesions to the intestines or omentum, large carcinomatous masses in the broad ligament, or nodules on the peritoneum in the cul-de-sac, or anywhere else that cannot be detected by abdominal palpation, characterize the case at once as hopeless.

Thus we see that every operation for carcinoma of the cervix begins with an exploratory operation.

The bacteriology of the carcinomatous surface is of prime importance. They all contain microorganisms of varying degrees of virulence. The danger of infecting the pelvic connective tissue and the peritoneum is always present, in spite of various precautions that have been advised. It is impossible to render an infected carcinomatous ulcer or area aseptic, whatever the preparatory treatment may be; and in the course of the operation it may be torn into, and the infective contents scattered over the field of the operation.

Long preparatory treatment tending to make this surface aseptic is to be condemned, for the carcinoma may become hopelessly inoperable under our very eyes, even if it is a little cleaner on the surface. Preliminary curetting and cauterizing in itself is not without danger, as it may be followed with chills and high temperature, and even with exudates, which may render the radical operation impossible. Preparation of the carcinoma by curetting, and cauterizing by thermocautery the day before or immediately preceding the main operation, seems to be the best method.

In calling your attention to these factors in the treatment and operability of carcinoma of the cervix, we must remember that there is another great factor in the operability, and that is the ability of the surgeon attempting the radical operation. As much depends on him as on the patient. What to one man is an operable carcinoma may be inoperable to another. I know of surgeons that refuse to operate for carcinoma of the cervix, or to do more than a mere palliative operation, probably because they have had a shockingly large number of recurrences, or they have done poor surgery, and have had a



mortality following their operations which precluded further efforts on their part.

There is no use of hiding behind the statement that it is of no use to operate for carcinoma anyhow, because in all cases of carcinoma recurrence always follows, and the cases in which recurrence does not take place were not carcinoma. I need only to refer you to the diagnosis, which must be made with the microscope, but not the microscope alone, or the stain, or the technic of sectioning, but by the man that looks into the microscope. This is all based on clinical experience and pathological investigation, and the literature is full of reports of carcinoma cases that have been operated on and the patients are alive, from eighteen years ago down to the present date.

Surgery is the only treatment for the carcinoma that offers any hope for cure, and the operation advised by Ries is standard today. It was devised, perfected, and performed by him in 1895, and is variously called the extensive Freund or the Wertheim operation. Any other technic that does not embody the principles of the Ries operation, is no better than any palliative operation, such as a simple hysterectomy or curetting and cauterizing the carcinomatous surface. In brief, the operation consists in the removal of the uterus, tubes, ovaries, pelvic fascia, pelvic peritoneum, vagina, internal inguinal glands, and all the glands along the iliac arteries and veins, as nearly in one block as possible. This is a very hard and difficult operation, taxing the skill of the surgeon to the utmost; and no man should attempt it unless he has had a large experience in abdominal work, or has developed the technic on the cadaver. It takes an unlimited amount of courage to persist in the extensive dissection that is necessary to remove the carcinomatous block, but the prize is worth striving for, as there is no other treatment that offers what surgery does for the carcinomatous cervix.

The statistics that Ries gives show, in brief, that one-third of the patients do not survive the operation, dying either on the table or before they leave the hospital, from sepsis or other operative accidents. A little more than one-half of the remainder die a cancerous death from recurrence, and the balance are well from eighteen years ago down to the present date.

The teaching of Emil Ries has been a great help to me, and his papers are freely quoted in the preparation of this paper.

#### DISCUSSION

DR. S. M. HOHF (Yankton): In the first place this paper is to be commended on account of its brevity. It is one of the essentials of a good paper to be brief and right to the point; and since the hour is late I shall be brief in my discussion.

I shall make a statement which may appear on first thought a little surprising, namely, that no woman who has a vaginal discharge is entitled to it, except at her menstrual period and puerperium. If she has, it is pathological; and a vaginal discharge preceding an irregular hemorrhage frequently means a carcinoma, so much so that when one comes to you with these symptoms you should be suspicious.

The remarks so brilliantly given here this morning by Dr. Jackson with reference to carcinoma of the breast, may be applied, word for word, to that of the uterus. The earlier the recognition of a carcinoma, and hence operation, the more successful and permanent will be the results. What does all this presuppose? First, when a woman comes to us with a pelvic lesion, that we be in a position to make a correct diagnosis. Dr. J. B. Murphy, of Chicago, than whom there is not a greater living pathologist, says, in substance, that if the carcinoma has already so advanced as to make the diagnosis possible without the microscope, it is already too far advanced; and, personally, I have never seen a case of carcinoma of the uterus permanently and completely cured where the operation of Ries or Wertheim has been necessary.

Dr. Percy, of Galesburg, Ill., is strongly bringing forward the thermocautery method, as has been suggested, which we hope will favorably modify our results in these inoperable cases. I have as yet not used the thermocautery, but shall at the first opportunity.

DR. JONES (closing the discussion): I had the pleasure of seeing two cases that were operated on eighteen years ago for carcinoma of the cervix, and are perfectly well with no sign of recurrence. I also saw another case that recurred nine years after the radical operation, the recurrence taking place in the external inguinal glands, showing the same type of carcinoma as involved the cervix at the time of the radical operation nine years ago.

I do not know where you are going to place a time limit on the recurrence of carcinoma unless you place it at three score years and ten, our allotted time of life. They have simply got to stay cured, for, if they die five or eight or ten years after the radical operation with recurrence, they must be classified as a carcinomatous death.

I have never seen Dr. Percy work, but I have heard some good reports of his work as a palliative measure only in inoperable cases. With the x-ray treatment, for instance, you can take an inoperable carcinoma of the uterus, one that is so bound down that all operative work is precluded, with the vagina filled with a cauliflower-like mass, and wither it down with the x-ray treatment until you think you could operate, but, leave off the x-ray treatment for a few days or weeks, and see what happens.

As Dr. Jackson said this morning, there is no use in taking off a carcinomatous breast without cleaning out all the glands, and the same thing applies to carcinoma of the cervix. You must remove all the glands along the iliac vessels.

## LUES

By N. L. LINNEMAN, M. D., AND E. L. TUOHY, M. D.  
DULUTH, MINNESOTA

## IN TWO PARTS—PART II

FURTHER DIFFERENTIATION OF THE GASTRO-  
INTESTINAL TRACT

Thirty-six cases in all comprise this group. All but 6 could well be placed, dependent upon the predominance of the symptoms, in one of three groups: stomach group; gall-bladder group; or the intestinal. These six were so overriding as to justify their being placed in both groups. Of the 36, 6 were cases of true hour-glass stomach. Three of these cases had previously been described by one of us,\* and 1 came to autopsy, the pathological diagnosis being hour-glass deformity of a so-called "cirrhosis ventriculi" type. No spirocheta pallida could be demonstrated in microscopic section. There was, however, perivascular infiltration strongly suggesting lues. It is interesting to note that repeated positive Wassermanns were found in all these cases. In one instance, not only an hour-glass stomach, but also a definite aortic aneurysm, was found. Another instance had come under our observation, but not here included, of an hour-glass stomach found at post-mortem, with a large gumma of the brain. We have not found a single hour-glass stomach not proven malignant, in which a positive Wassermann could not be demonstrated. As previously suggested by one of us, the well-known tendency for lues to cause a stenosis of the larynx and rectum might well cause us to suspect that the same agency could produce a narrowing in other portions of the gastro-intestinal tract. In one instance a true deformity of the pylorus was found, indefinite in character, but, clinically, not suggesting cancer. It is well to state that it did not give a true filling defect. Three cases showed sufficient disturbance of motility to give a rest of one-fourth to one-third of the barium meal, after six hours. All of these cases, while they have made striking improvement under treatment, still at the end of from eight months to one and one-half years have a rest after the usual six-hour interval. In 7 cases the condition of achylia gastrica was encountered, as it was also encountered in all of the hour-glass stomachs. In our experience the condition of low acidity is much more common than excessive acidity. The latter condition was found in 2 cases; and conditions which could be classed as only gastric

neuroses were encountered in 2 others. Of this stomach group, 3 cases had been operated upon for a total of seven operations, all for the condition they complained of. Two of the patients were operated upon for their stomachs; the other had a pelvic operation.

Thirteen of the gastro-intestinal cases we would describe as a gall-bladder group. High blood-pressures were encountered in 3 of these cases, suggesting the presence of some toxin in the body. It can be stated that the attacks, while simulating gall-stones, do not have the same point of tenderness, the same radiation areas, and usually not the sharp, acute onset of pain, which is so characteristic of true gall-stones. Other evidences of hardening of the posterior columns of the cord have been discovered in only 2 cases, which would lead us to feel that gastric crises are fairly common, and can appear as an isolated evidence of luetic involvement of the posterior column, while both the lower and the upper neurons are, as yet, entirely unaffected. In other words, the old symptom-complex, known as locomotor ataxia, is a late evidence of lues, and an expression of a diffuse involvement.

CHART II—TABLE OF SURGICAL OPERATIONS ON  
SYPHILITICS

	Operations
14 Individuals operated upon for a total of .....	30
Gastro-intestinal Group—	
3 Stomach cases have total of.....	8
4 Gall-bladder type total of.....	5
4 Functional neuroses total of.....	10
1 Anemia group total of.....	4
1 Cardiovascular group total of.....	1
1 Cerebrospinal syphilis total of. ....	1
—	—
14	29

INTESTINAL GROUP

In the intestinal group we will place 8 cases. There are many others whose major symptoms pointed elsewhere, in whom intestinal symptoms also occurred. Of the cases in which the intestinal symptoms predominated, 3 had pain in the appendiceal region, intermittent in character and severe. One had been operated upon and a small, so-called "scarred" appendix had been removed, but the painful attacks recurred. These

\*Tuohy: Interstate Medical Journal, Vol. xii, Nov. 9, 1914.

so-called attacks of appendicitis were atypical: patient had no rigidity of the abdomen, no vomiting, no increase of temperature. Wassermanns were positive in both cases, and immediate relief was secured from antispecific remedies. These facts would leave little doubt in our minds that these pains had nothing to do with the intra-abdominal contents, but were localized neuralgias, specific in origin. Two cases had definite mucous colitis, with the usual neurotic history. They made striking improvement under antispecific treatment. Three were classical instances of visceroptosis, with periodic outbursts of what might be called intestinal colic. Two of these have not been benefited much by treatment; the third made an unusual gain.

We have encountered one case of stricture of the rectum, for which colostomy was performed.

To sum up at this time the cases we have observed in which operations have been performed, we will add to those mentioned above 4 cases which could fall in our so-called "neurasthenic" group, in which 10 operations were performed. The complaints were vaguely of the intra-abdominal type. In 2 of our cases called "anemic" and 1 of the "cardiovascular," a total of 5 operations have been performed. Totalling all the cases that have been operated upon, we find that 14 individuals showed a total of 29 operations.

#### CARDIOVASCULAR GROUP

In this group practically all the cases of lues could be placed, since lues is a perivascular infiltration. Particularly well could many of the cerebral changes be here classified, such as vertigo, tinnitus aurium, or the localized disturbances due to gumma. In this group, however, I want to put 2 cases of this class, 1 individual who temporarily lost the power of speech, and the other a definite instance of vertigo and transient loss of memory, with hypertension, evidently an evidence of sclerosis of the cerebral vessels. The remainder of this group, 10 cases in all, had true organic involvement of the heart and aorta. Of this group, 6 had aortic aneurysm; the one, as previously mentioned, in addition to having aortic aneurysm, had an hour-glass stomach. Three had what we may term a *mesaortitis luetica*. It is granted that this definite diagnosis is difficult to make, but, when a young, robust patient complains of sharp, shooting pain in the chest, dyspnea on exertion, and nothing can be made out on routine examination except a positive Was-

sermann,\* and if this patient loses all of the disability under antispecific treatment, it is fair to assume that a *mesaortitis luetica* is present. Two had definite myocarditis, in which enough symptomatic improvement occurred under the use of antispecific treatment to justify this diagnosis. Three had valvular defects, with positive Wassermanns; 1 had a true pulmonary stenosis, in which, of course, it could not be stated whether this probable congenital lesion had any connection with a congenital lues or not. Another was an instance of mitral stenosis, in an undersized, undernourished, young woman, who gave a positive Wassermann, and in whom antispecific treatment greatly improved her general health. The third was an instance of mitral insufficiency, complicated with myocarditis, and a marked anemia, in which antispecific treatment had good effect. Two cases of pure aortic insufficiency were encountered, coming on late in life. In one, an aortic aneurysm was also present. Three other instances of aortic insufficiency were encountered, one in a tabetic; another in a man who had an hour-glass stomach; the third in a man about 60, who had a paralysis of the 6th nerve.

#### EYE, EAR, NOSE AND THROAT GROUP

Seven cases of congenital lues were encountered, at ages varying from two to twenty-four years: 8 of these with eye lesions; 5 were interstitial keratitis; and 3 choroiditis. One case of choroiditis was of fifteen years' standing. All these responded well to treatment, but the keratitis cases very slowly, requiring much persistence and patience, and some were under observation as long as four years.

Three cases of iritis were encountered in adults, undoubtedly luetic in character; and 1 nervous woman who had complained greatly of eye symptoms, that had been diagnosed lack of muscle balance, was found to be luetic, and improved under treatment.

Almost complete deafness was encountered in 2 instances, the 1 being in a girl with typical immature, notched teeth, and associated eye symptoms, and the other in an elderly woman with rapidly developing deafness, who showed a positive Wassermann, and prompt improvement under treatment.

In the throat group we have here placed two individuals who primarily came complaining of a rather unusual, dry, parched, burning sensation in the throat. Both individuals were mark-

\*This means total inhibition of hemolysis, commonly spoken of as the four plus.



edly anemic, and had an achylia gastrica, and were extremely uncomfortable. Two other individuals, otherwise classified because their symptoms were gastro-intestinal, have exactly the same symptoms which we have, in a measure, come to know. All these were completely rid of their distress by treatment. It must be said, of course, that this is really not a distress of the throat, but is rather a disturbance of secretion, of which the achylia gastrica is a part, and the parched, hot feeling of the skin of the lips and mouth, is a sensory disturbance. The ordinary throat disturbances seen in the secondaries are not placed in this group, nor are those ulcerations clearly due to breaking-down gummas.

#### JAUNDICE GROUP

Striking jaundice has been encountered three times. It has been stated that a positive Wassermann may be secured occasionally in the presence of a jaundice. This has not been our experience. These individuals did show positive Wassermans, but the recession of their symptoms after antispecific treatment was begun furnishes striking enough proof of the specificity of the lesion, were any such needed. One case was proved at operation to be luetic.

#### PULMONARY GROUP

There are five cases in this group, 2 women and 3 men. In one, a long history of pulmonary infection was present, with cavity-formation, probably a bronchiectasis. Tubercle bacilli were never discovered. She had been treated in a sanatorium for several months. Later on, a Wassermann led to the institution of antispecific treatment, and the patient promptly recovered, losing all her pulmonary signs. In another individual, aged thirty, tubercle bacilli had been found in the sputum. A specific history was given, and the Wassermann was positive. Much improvement followed treatment. A man, aged forty-one, had previously been diagnosed as tubercular, and had persistent and intense cough. Tubercle bacilli were never discovered. Chest röntgenograms were negative for tuberculosis. Striking improvement after antispecific treatment was instituted. The other two cases have been classified elsewhere,—one as a tabetic and the other as an instance of mesaortitis luetica. He had a most intense cough and profuse expectoration. Röntgenograms also were negative for tuberculosis, and antispecific treatment gave much improvement.

#### FUNCTIONAL NEUROSES WITH LUES AS A FACTOR

This is a baffling group to classify. The symptoms tend to lead nowhere in particular. They are patients, as a rule, that have sought medical aid in many places, and certainly tax the ingenuity of the clinician greatly to give them any benefit. Among the 23 cases here classified are some in which, no doubt, lues is only a minor consideration. One we have proven to have, in addition, carcinoma of the cervix. One other had pus tubes. A woman has epilepsy of the ordinary variety, which has not been benefited as far as can be seen, by specific therapy. One woman, in addition to having tinnitus aurium of a severe nature, and also having had pulmonary tuberculosis, complained of a variety of other symptoms, which have promptly yielded to anti-specific treatment. One patient had distinct hysterical states, day dreams, blurring of vision, with spells of partial loss of consciousness, bordering on epilepsy, no doubt. In 9 of these antispecific treatment, most of it in pill form, has given enough improvement to satisfy the patients, and start them off with a better outlook in life. Seven did not remain under observation long enough to get any treatment, and in the rest where it was tried, no improvement could be seen.

It is well to add here that many factors make treatment of these cases extremely difficult. Their nervous temperament makes it unwise to urge them to use inunctions: their stomachs frequently do not tolerate internal medication; they have long since taken so many forms of medicine that they have lost all confidence in its efficacy, and intravenous medication, with neo-salvarsan, will scarcely ever be a popular remedy with those who do not know what they are taking.

#### NEURALGIA GROUP

It must be admitted, of course, that few syphilitics escape having some neuralgic pain somewhere. The 9 cases are placed in this group because of the one decided and striking symptom of neuralgia, somewhere in the body, which brought the patient to the physician. Three of these cases were men, and 6 women. One each complained of neuralgias on the right side of the face, of persistent intercostal neuralgia over the left side, of a neuralgia or neuritis about the right shoulder, coming on at night, and one of recurrent stiffness, neuralgia of the left side of the neck, worse at night. Two cases, very similar, complained of pain from the teeth. The teeth and teeth-sockets seemed sensitive. Pain

would shoot up over the upper jaw. The one had had much dentistry in an unsuccessful effort to get relief. The pain promptly yielded to anti-specific treatment. In the other case, the patient did not remain under observation. Three instances were seen of peculiar and persistent back-ache, of the lumbago type, and in 1 instance the pains were varying in location and intensity. One instance was encountered in a woman aged thirty, single, who suddenly developed shooting pains in the left arm, accompanied by a coldness of the member throughout, with a blueness of the skin and some swelling. The veins became quite prominent, suggesting the possibility of a phlebitis. However, there never developed any tenderness along the course of the larger veins. The ordinary treatment had been unavailing for some two weeks. The Wassermann reaction, taken as a matter of routine, to our surprise, showed a complete positive, and the condition which had appeared so baffling promptly cleared up with the mercury rubs. This might be taken as a general indication of the necessity of being on the lookout for lues in any and all atypical conditions and clinical states.

#### ANEMIA GROUP -

In this group of 15 cases, there were only 2 men. One of these men had true pernicious anemia. He also gave a positive Wassermann, and a fairly suspicious history. It can be definitely stated that antispecific treatment had no effect whatever upon his disease, and would lead us to feel that true pernicious anemia is an entity entirely separate and distinct, in which syphilis plays no rôle. The other man was a cook, forty years old, who had been treated for several months for a persistent and peculiar anemia. He later brought his wife, who was suffering from typical manifestations of syphilis, and gave us the source of his trouble. Of the remaining cases, only 2 could be said to have the ordinary secondary anemia, with the proportionate decrease in the red cells as well as the hemoglobin. The remainder had the blood-picture of a chlorosis.

From our experience we would conclude that any persistent chlorotic condition or anemia which does not yield rapidly to ordinary hematotics, should lead us to suspect syphilis. We may also say that under antispecific remedies, while the general condition of the patient usually improves very rapidly and markedly, it is very difficult to bring up the hemoglobin again to the normal, or to hold it very long at the point we have attained.

It will be appreciated by the reader that the discussion of these different groups is far from complete, and, with a series of cases such as this, any one symptom, major or minor, might be studied and elaborated from the statistical point of view, possibly with more benefit than this general survey. The individuals comprising the study have been those encountered in the usual office and consultation practice, and represent all walks of life. None of them had been seen in any charity clinic, and they are therefore of value as pointing to what might be expected in any community similar to ours.

Only one special group has been given study from the special standpoint of the number of pregnancies and miscarriages which occurred, and the number of living children which we have known personally to have been born to luetic parents.

#### CHART III—PREGNANCY AND PROGENY

##### *Of 45 married women with syphilis*

11 had no pregnancies	
34 had pregnancies	
27 had miscarriages.....	Totalling 72
34 had children.....	" 60

##### *Of 12 married men with syphilis*

6 had pregnancies in family	
6 had no pregnancies	
3 had miscarriages in family..	" 28
6 had children.....	" 25
57 syphilitic individuals had children .....	" 85
57 syphilitic individuals had miscarriages .....	" 100

A large number of histories were taken without any statistical purpose in mind, the result being that they are useless as far as this particular study is concerned. However, out of 130 which could be studied in this way, it was determined that 45 women were married, and 18 men. Of these 45 women, married to men concerning whose health we have no knowledge, 11 had no pregnancies. Of the remaining 34 that became pregnant, 27 had miscarriages, totalling, in all, 94 miscarriages. From these same 34 women, 60 living children were born. Of the 18 men who were married, and concerning whose wives we have no data, 6 reported no pregnancies in their families. These men, collectively, were the fathers of 25 children. In their families, 5 men had reported 6 miscarriages, and in 2 there had been both children and miscarriages. Totalling this, we note that in the families of these 45 women and 18 men, totalling 63 fami-

lies, there resulted 85 children in whom we have personal knowledge that 8 were definitely luetic, and the total number of miscarriages exactly totalled 100. The highest number of miscarriages in one 1 was 14, 2 had 7, 3 had 5.

## DISCUSSION

DR. G. B. EUSTERMAN (Rochester): In the first place, I wish to congratulate the authors of this very interesting paper. It may be logical to say a few words about the prevalence of syphilis. We are inclined to believe that syphilis largely predominates in the populous centers. This is true in the main, and it is especially borne out by the fact that in one of the general hospitals, not a charity hospital, in New York City over sixty per cent of the patients registering in the receiving department showed a positive Wassermann reaction, yet in our rural centers we are surprised at the frequency of syphilis as the cause of the symptom-complex.

With respect to serodiagnosis in syphilis: the Wassermann reaction has been one of the most valuable contributions to medicine in recent years. To my mind it has done this for us: (1) It has established the etiologic relationship between certain forms of organic disease and syphilis; (2) it has shown the inadequacy of former methods of treatment, and has shown also the sad fact that a good many of these diseases are intractable to specific treatment, particularly organic nervous diseases; (3) a positive Wassermann reaction often gives the first evidence as to the causation of an obscure train of symptoms; (4) it is an aid in the recognition of syphilitic visceral lesions, of which I shall speak later.

The limitations of the Wassermann reaction must be borne in mind. You will recall that in recent literature several investigators who had been disappointed in the results of the Wassermann reaction sent blood to different laboratories obtaining different results. Investigators have also shown that in secondary syphilis a Wassermann reaction is present one day and absent another. In a great many routine examinations a Wassermann reaction is taken, and a positive reaction obtained without a history or objective evidence of syphilis being present, and some of these patients are condemned with a diagnosis of syphilis, which is not later corrected. In other words, one positive Wassermann reaction is not conclusive of syphilis. Repeated reactions, and particularly if the reactions come back strong, is fair presumptive evidence. If, in addition to that, there is a reliable history of infection, or objective evidence of syphilis, then it is probable that the Wassermann reaction is conclusive. This is my impression from a considerable number of patients who have eventually proven therapeutically, and otherwise, to have had syphilis.

We must always remember that a man may have a train of symptoms dependent on some associated disease in the presence of evidence of syphilis, and this trouble may exist in spite of the fact that he also has syphilis. This is an important point to remember, and has been well shown in our cases of peptic ulcer of which 5 per cent have given a positive Wassermann reaction, and syphilis was not a factor in explaining the co-existence of this abdominal lesion. A great clinician has said that he who understands syphilis knows internal medicine. The more cases we see the

more we can vouch for the accuracy and truth of this statement. A great many times errors in diagnosis can be avoided if in routine examinations we bear in mind the objective manifestations of the disease. In my experience the points of importance in the diagnosis are as follows: evidence of mucocutaneous healed lesions, including those of the nasopharynx; evidence of cardiovascular disease, associated with or without hypertension, particularly disease of the aortic valves and aorta; disturbances in reflexes and special sense-organs; tibial periostitis; anemia associated with nervousness; adenopathies; abdominal tumors, especially those of the left upper abdomen; hepatic syphilis, usually shown by evidence of hemorrhage of the left lobe of the liver, as described by McCrea. Other tumors or lesions may be the result of visceral syphilis.

The question of denial of the disease has little or no value. In as high a group as 40 per cent showing positive Wassermann reactions there was apparently no knowledge of primary infection. The significance of repeated Neisserian infection is of great importance. We frequently get positive Wassermann reactions in patients who have had repeated attacks of gonorrhea in the absence of evidence of a primary lesion.

Twenty-four cases of syphilis of the stomach which probably will stand the acid test of criticism have been observed in our Clinic. A positive Wassermann reaction was obtained repeatedly with operative or roentgenologic demonstration of the lesion in the stomach and a symptomatic therapeutic recovery. That is to say, the patients are symptomatically well, although the lesions may show little or no change.

I would further emphasize the importance of exercising tact in talking of syphilis to these patients. A great deal of unhappiness may be caused by it. We should remember that syphilophobia may prove as dangerous, and as intractable to treatment, as the disease itself.

DR. C. R. BALL (St. Paul): I wish to compliment Dr. Linneman and Dr. Tuohy on the comprehensive and scientific manner in which they have presented this subject.

I was much interested in what Dr. Tuohy had to say with reference to visceral syphilis and its confusion sometimes with other visceral disorders. I had a case in which there was seemingly a typical history of gall-stone attacks. The patient consulted a surgeon who removed something like 200 gall-stones. Fortunately, for the diagnosis, I had been treating her brother who had a well-developed case of congenital syphilis, and it was not a very difficult thing for me to connect her condition also with congenital syphilis. She said to me, "How long is it, doctor, after an operation before one ought to feel the good effects of it? It is almost a year now, and I cannot honestly tell whether I have gained or lost." I put her on specific treatment, and her periodical attacks of pain, the tendency to acidity and sourness of the stomach, and bloating disappeared. The removal of the gall-stones had not relieved her, but the specific treatment did.

My chief interest in syphilis begins when it affects the nervous system, and while we have gone a long way recently, and discovered a great many things with reference to it, the farther we go, the more the problems which arise for solution.

In reading up the treatment of syphilis, one of the



things which struck me forcibly was this: after reading a long discussion of whether the cases which had received thorough treatment were any more liable to late nervous syphilis than those who had never received any treatment at all, statistics were quoted on both sides, and the conclusion of the men who took part in this discussion, men of large experience, was that it was about even. So far as statistics were concerned, there was no great difference. The only thing they felt sure of was to advise anyhow thorough treatment.

We have had in the past few years a perfect furor of specific treatment. It seems to me in this we have failed to take into consideration probably one of the most important factors. We now know that about forty per cent of all early cases of syphilis have in the spinal fluid a lymphocytosis, which means that the meninges are involved, or that they have a syphilitic meningitis. We know that only three per cent, less than three per cent, of all cases of syphilis develop either tabes or paresis. The only conclusion we can draw from this is, that over thirty-seven per cent recover, and that the recoveries in these cases are spontaneous.

Recently, Nonne has published a series of thirteen cases which, so far as clinical symptoms, and the reactions in the blood and spinal fluid were concerned, are very similar. All received about the same degree of treatment. Of these thirteen cases, over a period of five years, three progressed and ten remained stationary. Such observations as these should cause us to reflect. They emphasize the importance of individual resistance so necessary for recovery in all infections. Our specific therapy should never be so intense as to interfere with the general nutrition and well being of the patient which is all important if his natural assistance is to be utilized.

DR. G. J. THOMAS (Rochester): The excellent paper we have just heard teaches a great deal. It brings out one point very forcibly, namely, if we are able to cure every case, say, after an experience of ten or fifteen years with salvarsan therapy we shall have to compile histories of a large number of cases,—the results of treatment, the kind and amount of treatment, together with the method employed and the time between treatments. When we all do as Drs. Tuohy and Linneman have done, that is, make a complete record after a thorough examination, we will arrive at a definite method of treating syphilis. At the present time we combine salvarsan with mercury; some observers use salvarsan alone; others use neosalvarsan, while a few are content to use mercury and iodid, and we all seem to obtain the same results. Dr. Tuohy also emphasizes the fact that syphilis is not a venereal or skin disease, but a general disease; and the sooner we as practitioners realize this the quicker we will be able to combat it or cure it.

In regard to the interpretation of the Wassermann reaction: I believe it is just as essential to have a skilled man interpret this serologic test as it is to have a trained man interpret röntgenograms. Men accustomed to reading plates will interpret them correctly, while a man who sees a plate occasionally may only be led astray by what he sees. A clinician with a complete history, a complete clinical examination including the special sense-organs, the röntgenogram, and a Was-

sermann before him, the Wassermann having been interpreted by a trained serologist, is able to interpret the Wassermann correctly. Clinicians of wide experience who have always made complete examinations seem to be satisfied with the results of this test.

Instances have occasionally been noted in our Clinic of, for example, a case being referred to the department of the nose and throat or to the eye department, and not infrequently the findings at one of these examinations are such as to enable the specialist to diagnose or at least suspect the presence of lues. In some instances these examinations have brought out the first findings to indicate the nature of the disease. In the early diagnosis of some conditions in the chest the röntgenographic examination has frequently shown enlargement of the greater vessels, which has suggested lues and upon re-examination this was confirmed by previously unobserved findings.

In our hands the cystoscope has made the diagnosis of a cord-bladder in a number of patients who had not shown other signs of tabes. We have seen a few cases of rectal stricture and tumor which were the only indications of lues. The relaxation of the rectal sphincter is also a finding that has helped us to a diagnosis.

I think Dr. Tuohy did not speak of the intraspinal treatment. In our experience the results have been just as good with thorough intravenous treatment. We have frequently observed a reversal of the spinal Wassermann under thorough intravenous treatment.

DR. S. E. SWEITZER (Minneapolis): With reference to the diagnosis of syphilis, there is one point which is frequently lost sight of, and that is, that a certain percentage of people who have active syphilis have negative Wassermans. We make more mistakes in considering these people non-luetic than we make in patients who do not have syphilis, but do have a positive Wassermann.

DR. LINNEMANN (closing): I tried to make it clear in my paper that one positive Wassermann has very little or no meaning in a case that did not have syphilitic symptoms.

Dr. Eusterman spoke of patients having peptic ulcers with a positive Wassermann. A positive Wassermann simply means that a patient has had syphilis. He says that patients who have had repeated attacks of gonorrhea have positive Wassermans, but he finds no chancre, and yet chancre was evidently present in such cases. The patient may have had a small chancre at some time which disappeared. That chancre may have been in the urethra, and been overlooked unless it was searched for.

I am glad he spoke of the atonic bladder. I have seen that several times in tabes, but I did not have time to mention it in the paper.

A negative Wassermann is often found in cases of active lues. One of the surgeons in the U. S. Naval Service recently reported upon a series of over 300 cases, in which he took the blood daily for seven consecutive days. The test frequently varied from day to day.

In early syphilis, especially in the secondary stage, we usually find some skin lesion or lesion of the mucous membrane. If a man is familiar with syphilitic lesions he will have no difficulty in making a diagnosis without the Wassermann test, in early syphilis.

## CHRONIC PANCREATITIS\*

BY JOHN W. SHUMAN, M. D.

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Anatomically, the pancreas is an elongated glandular mass situated transversely on the posterior abdominal wall, with its head resting in the concavity of the duodenum and its tail touching the spleen. On account of this obscure anatomical location and the lack of observation, chiefly the latter, the diseases of this organ are rarely diagnosed except at autopsy.

Physiologically the pancreas secretes a fluid called the pancreatic juice, which constitutes one of the chief agents in proteid digestion. The physiological chemistry of this secretion deals with its three ferments,—trypsin, which changes the nitrogens; steapsin, which acts upon the fats; and amyllopsin, which converts starch into sugar.

Pathologically, there are two forms of chronic pancreatitis, namely, the biliary and the non-biliary, classified according to their etiology. The first form receives its infection from the biliary tract and the second form from the intestinal tract, both through the duct of Wirsung. Obstruction of the ducts, tumors of the head of the viscus, biliary and pancreatic calculi, syphilis, and arteriosclerosis are also given causative rôles. Gastric, pyloric, or duodenal ulceration may easily give rise to a localized pancreatitis.

Opie (*Disease of the Pancreas: Its Cause and Nature*, second edition, 1910) distinguishes two types of chronic pancreatitis,—the interlobular, in which the process involves the connective tissue which runs between the lobes, and the interacinar, in which the connective-tissue proliferation takes place between the acini. The islands of Langerhans are not involved until late in the interlobular type of the disease, but are apt to be involved early in the interacinar form, with the symptoms of diabetes as a consequence.

The symptoms of chronic pancreatitis vary considerably. This depends upon the part of the gland diseased. As implied above, the majority of cases are discovered by the pathologist. The cases which are diagnosed clinically are most frequently complications of affections of the bile-ducts. Here the symptoms of inflammation of the pancreas are greatly, if not totally, masked by those of the biliary infection. A short time ago I saw a case which was sent into the hospital for "gall-bladder surgery," in which general peritonitis was evident with the causative pathology lo-

cated in the upper belly. The history was of gall-stones, and the acute picture was one of ruptured gall-bladder. Dullness in the flanks was the only thing which led me to suspect a complicating pancreatitis. Operation revealed multiple biliary calculi, the head of the pancreas enlarged and hard, and free, reddish-colored fluid in the belly.

Another type, which is fairly common, is that in which there is chronic jaundice due to pressure of the inflamed head of the pancreas against the common bile-duct, in which instance the diagnosis of cancer is difficult. I believe we had such a case under observation while I was serving as an internship. The case presented the text-book history and picture; the right upper belly gave the palpable evidence; and my chief made the diagnosis of cancer of the pancreas. He stated that the patient would not live over two months, and requested that I be sure to get an autopsy. But that patient made an uneventful recovery. He gained fifteen pounds, his jaundice disappeared, and the last I heard of him was from the staff doctor one year later, who remarked, when questioned, that the man was not only living but working at his trade.

It is even possible for the swelling to take place so that the ducts of Wirsung and Santorini are obstructed, causing exclusion of the pancreatic juice from the duodenum, which will give the so-called pathognomonic sign, that is, fatty stools. But in many cases there is neither jaundice nor complete obstruction of the pancreatic ducts. Then it is that the clinical diagnosis is most difficult. In these instances it is the history of physical signs evident to the senses of sight, hearing, and, especially, touch, augmented by the evidence of the laboratory and the perverted physiological chemistry, which will make the diagnosis of chronic pancreatitis more than a rough guess.

The diagnostic symptoms which lead one to suspect chronic non-biliary pancreatitis are, first, a history of digestive disturbance with pains in the upper belly and right hypochondrium, less frequently in the left; second, the rapid loss of flesh; third, the anemia secondary to the emaciation; fourth, a slight suggestion of jaundice; fifth, slight bulging above the navel with rigid rectus muscles; and, sixth, fat in the stools. If

\*Read before the Northwestern Iowa Medical Society, Oct. 27, 1915, at Sheldon, Iowa.



the head of the organ is palpable, it is hard and nodular, and, possibly, tender. When the stomach is inflated this tumor vanishes. If the head of the pancreas, by its swelling, blocks the biliary ducts, deep icterus, biliuria, and clay-colored stools are added to the picture.

#### LABORATORY TECHNIC

If we really wish to clinch the diagnosis of a chronic pancreatitis we must study the secretions and functional activity of the pancreas. Although it was said four hundred years B. C. that the pancreas emptied a fluid into the bowel which aided digestion (Deaver and Ashhurst: *Surgery of the Upper Abdomen*) it has taken more than two centuries to perfect a device with which we can obtain the secretions from this deeply seated and inaccessible organ. The duodenal tube has furnished the means we long have sought. With it the contents of the duodenum can be aspirated, and a study of the external secretions of the pancreas made.

My personal studies of the duodenal contents by means of the duodenal tube are too few from which to draw definite conclusions. I have noted, however, that the color of the aspirated contents is either light or yellow-brown; and as a rule the contents are transparent or translucent, and are alkaline in reaction. When the contents are turbid the reaction is acid, due to an admixture of gastric juice. I follow the plan of using the tube dry, and having the patient swallow it when the stomach is empty. The stomach secretions are immediately aspirated to be compared and examined with the duodenal secretions. The tube is left in, and two hours later aspiration is again performed. If the contents contain no bile another two hours are allowed to elapse before aspirating again.

In one case of severe pylorospasm the tube was in the stomach nine hours before the metal tip passed into the duodenum; in this and in another case bright-red blood was obtained as soon as the lower end of the tube passed out of the stomach, which substantiated the clinical diagnosis of pyloric ulcer. In another instance, a case of marked jaundice, there was not a trace of bile; but amylase, trypsin, and steapsin were present in the duodenal juice. The microscopic examination of the duodenal secretions of several "normal" individuals showed quite a few squamous and cylindrical epithelial cells and a few leucocytes.

While the stool analyses for the ferments are unreliable, according to Pratt (*Am. J. M. Sc.*,

1912, cxiii, 314) and Crohn (*Arch. Int. Med.*, vol. xv, No. 4) as compared with an examination for ferments in the duodenal juice, they should not be dispensed with. No physician is too busy to examine a stool for excess of fat, meat fibers, etc. Not a month ago I saw a nine-year-old boy who had had his urine examined repeatedly during the previous two years with sugar a constant factor, but his stools had never been examined. When examined, his stools were found to be copious, grey, and greasy, denoting pancreatitis as a cause for the sugar in his urine.

The existence of ten to twenty tests for ascertaining the functional activity of the pancreas is evidence at once that no one test has satisfied the rigorous requirements of both pathologist and clinician. These tests fall into three groups and will be only barely mentioned here.

First tests of the external secretion of the pancreas, usually carried out on the stool (Fuld-Gross), the urine (Wolgemuth), or gastric contents (Volhard oil test).

Second, tests of the internal secretion, consisting of tests for glycosuria, the Cammidge reaction, the Loewi pupillary dilatation test, etc.

Third, metabolism studies in absorption of fat, nitrogen, etc., from the intestinal tract.

Crohn (*Arch. Int. Med.*, vol. xl, No. 4, p. 581) writes that there is little uniformity of opinion as to the virtue of these tests. Most authors suggest that more than one of these tests should be used and an opinion formed from a general average of the results obtained. Crohn says of the three enzymes calculated lipase is undoubtedly the most variable, trypsin the most constant, and that by far the most reliable single index is the tryptic activity, as this protease is found uniformly when the ducts are open. From his studies he deduces that most cases of pancreatitis and some diseases in a neighboring organ cause diminution of the external pancreatic secretion, and that mild interlobular pancreatitis and pancreatic new growths, which do not obstruct the ducts, do not diminish the power of this secretion.

The Cammidge reaction is not of practical value according to many authorities. The Loewi pupillary reaction I have never observed, but it is a marked dilatation of the pupil within an hour when a  $\frac{1}{1000}$  adrenalin solution is instilled into the conjunctival sac. It is observed in pancreatic insufficiency and some cases of diabetes; it is also observed occasionally in exophthalmic goiter. Beyond the fact that in these cases there is increased susceptibility of the sympathetic system



to stimulation by epinephrin, there is no available explanation of the reaction.

Metabolism studies in the animal and absorption observations in human pancreatic disease, says Crohn, have failed to present satisfactory or acceptable conclusions on the simple issue, "Is the external secretion of the pancreas essential to good intestinal absorption?" It has been difficult, he says, to demonstrate conclusively in every instance, experimental and human, that the secretion of the pancreas was entirely cut off from the intestine when the observer claimed it to be; and where good absorption was claimed after tying off the ducts the critic inferred that some accessory duct had been overlooked. When the same occurrence took place in a clinical case the diagnosis was doubted. He thinks the external secretion has little to do with good intestinal digestion, but that the degree of interference with intestinal absorption is dependent on organic disease or functional derangement of the parenchyma of the gland, the pancreas probably

normally controlling intestinal absorption by an internal secretion or hormone. To substantiate this hormone theory many workers in the field of this disease report marked improvement in the absorption of fat and meat fibers following the feeding of pancreatic extract or the raw gland of a pig or sheep (the "sweetbread").

#### TREATMENT

In chronic pancreatitis as in all other diseases the slogan is to find the cause and remove it if possible. Any inflammation of the stomach or duodenum should be healed. If there are gall-stones present they should be removed, for chronic pancreatitis, the result of gall-stones, is usually cured by the removal of the stones and drainage of the biliary tract. In chronic infections of the gall-bladder with secondary involvement of the pancreas, in the absence of interference with biliary drainage, proper surgical technic furnishes a satisfactory symptomatic cure.

## BOOK NOTICES

**HYGIENE AND SANITATION.** By Seneca Egbert, M. D. Lea & Febiger. 1916. Sixth edition; revised and enlarged.

This is a very pleasing work. Its size and weight are two-thirds that of like books. The concrete style affords great compactness and intimate relation of matter. The discourse is articulate and living. The style, however, tends to excursions outside the usual. The author may have heard this call of the wild, but the scope of any work on hygiene and sanitation is so enormous that it shames the usual plea made for specialties in medicine.

In the consideration of "Germ Theory of Disease," "Making of Antitoxin," and "Alcohol," the useful basic factors might have been assumed rather than discussed.

The entire work is fine literature, for the germ theory is enjoyable; but the use of its every postulate might have been sufficient.

The assertion is repeated, and is largely true, that "bodily vigor protects from infection," but several infections are not seen to falter, except for specific immunity.

The observation that "all men seem prone to use stimulants—that this fact argues a real need and may justify a moderate use," may have another such interpretation as this: We greedily accept unearned increments of comfort or pleasure ignorant of our insolvency.

The quotations from clinical men of other decades as to alcohol suggests the need of adding modern scientific matter, as that of Kräpelin. This is distinctly available as hygienic material.

Under "Military Hygiene," (hygiene had a military birth, if you recall Parks' pioneer publication) there is a soft pedal plea for the restitution of the canteen. The canteen was not removed. All its better features were enlarged. Liquor sales were discontinued and half a million appropriation was made for the advantage of the soldiers therein. "The soldier's life is more valuable than the average."—Egbert. "Hygiene is betterment and extends to the social, the moral, the altruistic."—Egbert. Then he says: "We must take human life as we find it," speaking of the soldiers' inebriety. This is opposed to the purposes of hygiene as stated by the author, and denies the inspiration of all its scriptures. "The items of betterment are subject to forcible execution."—Hurty. In sanitation "we make them good by law."

In the index we find "Milk as a Cause of Disease," and prefer "a carrier" to the word "cause."

Illustrations are liberally provided. They are wonderfully good, as they must needs be to compare favorably with the text in its clarity and beauty of diction.

"Hygiene and Sanitation" contains far more than the physician and the health officer could expect. The helpful initiation, methods and data given under each heading place the reader as if well entered upon its execution.

"The book deserves the fate of its five brothers,—consumption."

—HAGGARD.

# THE JOURNAL-LANCET

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## FORCED EDUCATIONAL METHODS

The educators of the present time are evidently seriously considering a war upon the people, judging from the reports that come to us from various schools and colleges. Many perplexing problems are troubling the minds of these would-be enlighteners. An epidemic of investigation surrounds the much advertised Gary system. Judging from the newspaper reports, the town of Gary has produced a sensation, and no one knows what the outcome will be. If the newspaper impressions are true, we are on the verge of an educational revolution, but this, of course, will subside, as many of the political revolutions in foreign countries have subsided, after the first acute and critical stages of educational illness have passed.

Representatives from all over the United States are rushing to Gary. The system is discussed from every point of view, and feeble attempts have been made to apply this system to all sorts of educational institutions, particularly our public schools, and, if the record of attendance continues in Gary, the town will have a United States-wide reputation as a visiting center. The one redeeming principle of the Gary plan is that it applies to the Garyites, in that continuous school sessions permit the working

classes to shift hours just as they shift their work, attending school part of the day, and either working or playing the remainder of the time. It also gives the Gary mothers an opportunity to send their children to school and thus keep them occupied during a part of the day when their presence at home might be inconvenient. But to say that this system would apply to other cities, as many reporters seem to think, is probably taking a long chance in changing educational methods.

What is to become of the teachers who are presumably on duty eight or nine hours each day? Can they possibly keep up their work and do it justice? Taking Minneapolis as an example of strenuous work on the part of its instructors in the public schools, it would seem almost as if most of the teachers had been forced to work when bordering on the point of exhaustion. New methods have been adopted in this city during the past year which increase the amount of the work largely, and to such a degree that many of the teachers are planning to resign from their positions and work elsewhere. It seems unfair that after years of strenuous preparation, followed by years of strenuous overwork, that the status of the teacher, her compensation and her limitations, should not be more carefully considered than a new fad in educational attempts. The normal schools throughout the state, and one that the writer has in mind particularly, are evidently trying to make a record in turning out more teachers and better equipped teachers, regardless of the consequences to the teachers themselves. The result is that many of these over-trained aspirants are breaking down, and when women of twenty-five or under show the wear and tear of overwork and unnecessary work, it's time to call a halt. It is really time to call a halt on the whole educational system, and the only suggestion that seems wise to make at this time is that less work shall be done and more time given to the teacher and to the pupil for the fundamentals, and for the training of the mind in the right direction.

The management of the mind is the most important faculty that is necessary to the future development of the individual. That cannot be begun too soon, or at too early a period. If children were taught good habits, right living, and the physical care of their bodies, particularly cleanliness, which, from a physical standpoint, means a moral cleanliness, there would be a more secure foundation for learning and absorption

of new ideas than there is gained by crowding children between the ages of fifteen and twenty. It is quite true that the fault does not lie entirely with the school system. It lies primarily in the home, where ignorant, indifferent, and irritable parents are glad to get rid of a child for a few hours each day at any cost. The main issue in educational methods, after the physical side has been carefully outlined, should be to secure a habit of mind that would mean poise, control, and proper thinking.

The attitude of the present generation of educators is to crowd all of the theoretical material they can into the unwilling brain of the child, hoping that something will stick, and that nothing serious may happen. The reverse is quite apt to be the case—something serious happens, and very little sticks in the mind. The result is unbalanced, unstable, untrained minds, not infrequently engrafted upon irregularly developed and feeble bodies; particularly is this so in the nervous system, and physicians generally can detail case after case where the nervous system of the child has been broken down by educational ambition.

A very timely article appeared in *The Evening Post Magazine* of New York, February twelfth, purporting to be the diary of a Gary pupil, in which was given the number of visitors who had visited the room in which this pupil was seated. Most of the visitors were College Presidents and State Superintendents, but there was a sprinkling of commissioners and under-secretaries of vocational training institutes from distant parts of the world. The Associated Furniture Manufacturers were represented by large numbers. A clergymen's convention, and doubtless many other curious investigators were present. The article is one of the best take-offs on fad education that has been presented, and it shows how apt we are, as a people, to turn to fads; to misinterpret what we see; to ask silly and thoughtless questions; and then to go away with the idea that the visit had been one of great interest and great educational value. It shows very definitely how constant interruption in the school room brings about an instability in the mind of the pupil, and how children who have not yet reached the age of discretion and judgment may be impressed by these curious visitors.

There are very few private schools that have the right idea; where they combine thoughtful recreation and study; where the first principle consists in regulating time by the limitation of

the student; and where frequent interruptions of study are made, and the children sent out of doors to recoup their physical strength, and incidentally to invigorate their bodies and minds to a degree where they can go on with this new and apparently successful method of training.

Teachers are overworked; educators are forcing studies upon incompetent children, and they are more or less responsible for many breakdowns which show themselves in young adult life. If some prominent educators would take a course in public health work and study the normal child from a physiological standard, and study the abnormal child in the large clinics in the state, they would soon reach a simple, sane, and satisfactory method of education; but with the hurry and crowding, and trumpeting of new ideas, they will at last bring on a war which even the neutrals will be unable to prevent.

#### DR. HENRY BAIRD FAVILL

The death of Dr. Favill, of Chicago, in Springfield, Massachusetts, very recently, was a shock to the medical profession. Dr. Favill was in many ways a remarkable man. He was a man that everyone looked up to and respected, and a man of ability as a physician. He was really one of the big men in the United States. He perhaps did more good in his individual way than most men, in that he was kind, courteous, and sympathetic, and it made no difference to him whether his patient was poor or rich. He was a man, too, that was practical in his work; and his work not only comprised the practice of medicine, but he worked for the public. During the past few years he has been Chairman of the Council on Public Health and Instruction of the American Medical Association, and in that position showed the manner of man he was. Those who knew Dr. Favill will always remember him with the greatest kindness, feeling that he was a man that could be relied upon for any emergency, and the most dependable among men.

Dr. Favill, perhaps, was more a true American than most doctors, and he was proud of the fact that he had Indian blood in his veins. He showed his racial characteristics in his height, the high cheek-bones, and his rather swarthy complexion. He was an out-of-door man, and for many years discarded all means of conveyance in making his rounds and visits, and walked, as an out-of-doors man only can walk. They tell a story which illustrates his pride in birth: While attending a dinner in Chicago he was asked by



his hostess if his ancestors came over in the Mayflower, and he replied in that very courteous and characteristic manner, "No, my ancestors were on the reception committee."

Dr. Favill died in his fifty-sixth year, and his loss to the profession in general, and the A. M. A. and its Council in particular, shows the esteem in which he was held by his fellow men.

#### PROMOTION OF DR. H. M. BRACKEN

Dr. H. M. Bracken, the executive officer of the Minnesota State Board of Health, has been made Chairman of the Council on Public Health and Instruction of the American Medical Association. The Chairmanship was open to him because of the death of Dr. H. B. Favill, and further because Dr. Bracken represents the enthusiast in Public Health work.

His position among Public Health men in the United States has always been an enviable one, and his advancement to chairman of his committee is deserving, and shows that his services have been appreciated. As is well known, the committees which make up the Council in the A. M. A., are very carefully chosen, and chosen because of their fitness for the work.

Dr. Bracken's promotion is, in a measure, a compliment to Minnesota, and shows that Public Health work in this state has been long recognized. The JOURNAL-LANCET extends its congratulations to Dr. Bracken.

#### FRESH AIR VERSUS COLD AIR

Although the date of the present issue of The JOURNAL-LANCET would suggest the coming of spring, there is no indication for such a hope out of doors. March has begun her deadly work with increasing snows, winds, and penetrating cold. In spite of this, however, there are numerous people who vociferously believe in fresh air and cold air, and some of these sturdy, and some not so sturdy, people sleep on sleeping porches, if their statements can be relied upon, throughout the year.

This practice is in direct contrast to the habits of the poor and lowly, who sleep in close, stuffy rooms, badly ventilated, under mountains of bed clothing, also badly ventilated, some of them wearing the same clothes that they put on in the beginning of winter, in fact, some of them are sewed up for the winter, and yet in the spring come out apparently as fresh and healthy as a crocus.

The question arises whether too much cold air is always beneficial, and whether or not the average individual does not overdo the cold air problem. Unquestionably there are many people who have certain physical limitations, who injure themselves by sleeping out of doors during all kinds of weather. On the other hand, there are probably a few who experience no ill effects from hopping out of bed or getting up at night in the coldest of surroundings.

There should be a happy medium, for the reason that it takes an enormous amount of vitality to counteract the effects of cold air, and, of necessity, it must be more or less tiring to the porch sleeper who is nearly smothered in blankets, comforters, and canvas bags. The weight of such clothing alone is sufficient to disturb normal rest and sleep; and the necessity of getting into a cold bed, or among the more thoughtful, getting into an artificially, temporarily warm bed, is more or less objectionable. To get up in the morning, shivering and shaking with the cold, and rush from the porch into a bath room which, perhaps, is super-heated, is not altogether a good practice.

There are still many survivors who sleep in the house and have their bed-rooms ventilated or sufficiently cooled off to insure normal sleep. One difficulty, however, in the house with the windows open, is that the under surface of the bed is not protected, and a common complaint is that the sleeper has to occupy one position in the bed in order to keep himself warm, and not infrequently wakes early in the morning feeling chilled, and conscious that the bed is extremely cold. If some device could be arranged whereby the under side of the mattress, whether box spring or simple spring, could be protected, by either canvas or paper, there would be no objections to any amount of fresh air in the room. On the other hand, a great many people dislike to sleep in a draft, and to obviate this, not only for the sleeping room, but for other rooms, there have been adjustable screens constructed, covered with muslin, which, in a measure, filter the air and take out all of the dust and flying particles, and remove the discomforts of drafts.

The idea that people must sleep out of doors and must be nearly frozen to death at night, in order to retain their health and regain lost health, seems to carry the cold air problem to an unnecessary degree. Comfortable quarters, warmth in bed, plenty of fresh air, with proper ventilating apparatus, is quite sufficient for the average hu-

man sleeper, and is much more adaptable to the semi-invalid. During sleep the body must burn up a good deal of energy and must waste many of its products, and the waste is not altogether a stimulating one. In fact, it is sometimes just the opposite, but if people who are a little below par physically can accustom themselves to cool sleeping rooms where the air is being constantly changed, they will really derive more benefit than the pseudo-scientific porch sleeper who breathes all the cold air and imagines he is getting large returns for his efforts. As a matter of common knowledge, however, the average porch sleeper covers himself up, and not infrequently breathes the air that seeps in through the bedding.

The disadvantages of cold air to the invalid are great, and it should be the duty of the physician to explain the difference between cold air and fresh air to his patients and to advise them accordingly.

## MISCELLANY

### THE AMERICAN MEDICAL MEETING

Arrangements are now being made for an "Official Train" over the Chicago, Milwaukee & St. Paul Railway for the use of the physicians of the Northwest who are planning to attend this meeting June 12-16, at Detroit. It is expected that the largest party of medical men that has ever attended any of the meetings will be aboard this official train when it leaves the Twin Cities.

A Transportation Committee has been named, three from each of the Twin Cities, and one from each of the Dakota's, that will have charge of all the arrangements for the trip and look after the care and comfort of the party. The official train will have special sleepers for the exclusive use of the physicians and the trip will be made without any change of cars in Chicago. All detailed information as to the time of leaving, reservation of berths, fares, etc., will be given by the Transportation Committee by addressing them in care of the Journal-Lancet. Further information will be published in a later issue.

### AMERICAN FIRST AID CONFERENCE

The first meeting of the American First Aid Conference was held at Washington, D. C., August 23 and 24, 1915. At this meeting the following resolution, creating a board on first aid standardization for the purpose of studying first aid problems, and standardizing methods, ma-

terials, and equipment employed in the administration of first aid to those injured in the pursuit of industrial occupations and in war, was passed:

"WHEREAS, There is a great lack of uniformity in first aid methods; in first aid packages, and in other first aid equipment; and in first aid instruction; and

WHEREAS, Many of the aims of first aid are defeated thereby and needless suffering and expense incurred,

*Resolved*, That this Conference recommends to the President of the United States that he appoint a "Board on First Aid Standardization," said Board to consist of one officer each from the Medical Corps of the United States Army, the Medical Corps of the United States Navy, the United States Public Health Service, the American National Red Cross, the American Medical Association, the American Surgical Association, and the Association of Railway Chief Surgeons of America; this Board to deliberate carefully on first aid methods, packages, equipment and instruction and to recommend a standard for each to a subsequent session of this Conference to be called by the Permanent Chairman; the creation and maintenance of the said Board to be without expense to the United States.

As a means of attaining the objects of this movement the Chief Surgeons of Railroads, Mines, and Manufactories have been enlisted, and detail reports have been solicited from them and their associates. Committees have been appointed in the different states to further the work. The members of the committee for Minnesota are:

Dr. J. A. Quinn, St. Paul, Chairman; Dr. Thomas McDavitt, St. Paul, Secretary; and Drs. O. W. Parker, Ely; W. H. Magie, Duluth; C. W. More, Eveleth; and W. E. Rochford, Minneapolis.

Dr. J. C. Bloodgood, of Baltimore, Md., is Secretary of the Conference.

## CORRESPONDENCE

### TO THE EDITOR:

The subject broached editorially in the February number of *The St. Paul Medical Journal* in regard to unification of medical charities should be of great interest to the physicians of the entire state, and of particular concern to the physicians of Minneapolis, St. Paul, and Duluth, the three largest cities. In St. Paul alone, no less than one-half dozen unrelated, uncoördinated, duplicating medical clinics were enumerated; no doubt by including other smaller clinics the number could be easily brought above the dozen mark; the same chaotic condition exists in the other cities of the state.

The professional social worker and the public insist upon the coördination of social charities as an economic necessity. Coördination and coöperation in the social field is progressing toward perfection in all the large cities of the United States—St. Paul not excepted. With the increasing demands that physicians of modern cities have upon their time and finances, it would seem that it is high time that they promote coöperating and coördinating enterprises which would tend to check these drains.

This is a large problem, a matter that deserves a careful study by the best experts in the various related activities that you can command. In planning this readjustment the trend of social and preventive medicine should be taken into consideration. Up-to-date apparatus, the latest medicines, and a staff of the best medical specialists, all working in harmony, do not make a modern Dispensary. Its diagnosticating staff is only one-half complete, its therapeutic armamentarium is woefully deficient. Today a Dispensary cannot be considered complete without the addition of a staff skilled in social diagnoses and social treatment. In the case of baby welfare and tuberculosis clinics the visiting nurse has for sometime past been regarded as indispensable; she is just as valuable in the other fields.

The subject of evening clinics might receive consideration also; these are especially desirable for tuberculosis and genito-urinary cases; eye and dental clinics held at night at which a moderate fee is charged are on the increase and promise to solve the problem of the "quack" dentist and the "quack" eye specialist.

Finally, it should be remembered that people in general, poor as well as rich, are becoming accustomed to periodic examinations. The Dispensary of the future will be more a preventive agency than a place for the treatment of sick people; people will consult it in order that they may avoid sickness. No doubt there should be one large well equipped centrally located Dispensary, but the preventive work can be done best if there are numerous branch Dispensaries, conveniently located as to centers of populations. Schools and hospitals are the logical places for these branch Dispensaries; in some places the school plant is being used for the following related activities: (1) branch health office; (2) infant welfare clinics; (3) tuberculosis clinics; (4) branch office for United Charities, etc.

I. J. MURPHY, M. D.,  
Executive Secretary.

St. Paul, February 26, 1916.

## NEWS ITEMS

St. Peter is working upon a hospital project.

Dr. N. C. Bulkley, of Eveleth, is located in Minneapolis.

The N. P. Hospital is to remain in Brainerd for a few years at least.

Dr. L. L. Ten Broeck, of Minneapolis, is spending several weeks in the East.

Dr. A. T. Floew, of Harvey, N. D., is taking postgraduate work in Chicago.

Dr. E. M. Doyle, of Yankton, S. D., died at his home March 3, of pneumonia.

The fund for the hospital to be built in Duluth is rapidly nearing the required amount.

Dr. E. Z. Shapiro, of Duluth, was married on February 17 to Miss Edna M. Baker, of Virginia.

Dr. E. A. King has been appointed to assist the Minneapolis City Health Department in fighting the measles epidemic.

Dr. Arthur L. Hill, of Monticello, is in the Northwestern Hospital in Minneapolis, seriously ill with heart trouble.

The Committee on Arrangements for the Annual Meeting of the Minnesota State Medical Association, to be held in Minneapolis, October 12 and 13, 1916, consists of Drs. A. E. Benjamin, C. G. Weston and W. A. Jones.

The first regular transfer of fellows from the University of Minnesota Medical School and the Mayo Foundation will be April 1. There are nearly 150 candidates for the 20 places available. The State Hospital at Phalen Park, St. Paul, has also been brought into the plan of graduate instruction.

An organization of clinical laboratories throughout the United States has been formed, to be known as the American Association of Clinical Laboratories. The object of this organization is to raise the standard of laboratory work and to aid the medical profession. No laboratory can join this association unless it comes up to the standard set by a body of laboratory men, not connected with the association.

### LOCATION DESIRED

A middle aged Norwegian physician, with great experience in general practice, would like to associate himself with a capable physician in a city in North Dakota, Minnesota, or Wisconsin, who has a well established business with hospital opportunities. He is temperate and industrious. Address 310, care of this office.



## LOCATION OFFERED

For particulars as to a good opening for a physician, address C. N. Taber, Reynolds, N. D.

## APPARATUS FOR SALE

A \$125 Betz body hot air apparatus, gas and gasoline heat. Used 6 times. Can't see it has been used. Price, \$50. Dr. L. Almklov, Cooperstown, N. D.

## LOCATION DESIRED

By a physician in Minneapolis or St. Paul. Prefer assistantship with an established physician. Will take postgraduate work first. Address 326, care of this office.

## PHYSICIAN WANTED

In a town located in a Scandinavian district of North Dakota. The last doctor here made over \$2,000 in less than ten months. Very little competition. Address 321, care of this office.

## PRACTICE FOR SALE

In rich farming district of central Minnesota. Town of 300. Collections A-1. To the man who will buy my office equipment for \$150. Am retiring because of poor health. Address 323, care of this office.

## LOCUM TENENCY WANTED

Or salaried assistantship by a young man thirty years of age, having had five years' experience in hospital and general practice. Licensed in Minnesota, but will go anywhere. Address 317, care of this office.

## OFFICE FOR RENT

After March 31st my office at Chicago Ave. and Lake St. will be for rent, as I am taking a downtown office. This is an excellent location for some one wanting an outside office. Robert Williams, M. D.

## LOCATION OFFERED

A fine opening for a doctor, particularly if Norwegian, in a beautiful Minnesota city of about 3,000, free to the purchaser of my modern home on a large corner lot in the center of the city. Good schools and churches. Address 316, care of this office.

## LOCUM TENENS WANTED

Physician at once, regular, to take my practice for three months. Town 800, Minnesota. Another physician, must be prepared for big general practice. Phone Kenwood 713, or write J. T. L., care of James Burns, 2441 Humboldt Ave. So., Minneapolis.

## PRACTICE FOR SALE

An unopposed practice in live town on railroad in Southwestern Minnesota. Established seven years. Twenty-five hundred to \$3,000 per annum; collections 100 per cent. Money from the start. Small investment. Address 318, care of this office.

## ASSISTANT WANTED

Assistant wanted in country and hospital practice. Must have no bad habits, be ambitious, and on the job all the time. Good experience guaranteed. Salary \$1,500 to start, with chance for advancement. Minnesota. Address 319, care of this office.

## OFFICE FOR RENT

A nice large office in a modern building located at the corner of 27th Ave. So. and Lake St., Minneapolis. This is a transfer point and is very busy. Apply at the Ha Ha Candy store at above address.

## ASSISTANT WANTED

A young unmarried licensed physician to serve me at First Aid Hospital of Minn. Steel Co., Morgan Park, Duluth, Minn. Salary, \$100. Chance for private practice also. Address W. H. Magie, M. D., 401 Sellwood Bldg., Duluth, Minn.

## PRACTICE FOR SALE

A southern Minnesota \$3,800 practice in town of 500. Established 21 years. Rich country; high school; electric lights; good fees. Will sell for invoice of office furniture, instruments, and driving outfit. Must sell immediately. Address 322, care of this office.

## PHYSICIAN WANTED

To take my practice for the period of one year while I am away taking a postgraduate course. Office equipment furnished, but physician must pay all of his own expenses and collect his own accounts. Must come about April 1. Practice about \$4,500. No competition at present. Town 500. Must sign usual Locum Tenens agreement as to future practice. Address 324, care of this office.

## PRACTICE FOR SALE

One of the best country practices in Minnesota for sale cheap. Located in a town of 400 population, thirty miles from Minneapolis, on the Great Northern railway; thickly settled farming community of mixed population. No competition, large territory, ten miles all directions. Work from the start. Residence and office optional. Price for office fixtures and drugs, \$400. Best reasons for selling. Address 320, care of this office.

## PRACTICE FOR SALE

A first class western North Dakota practice in a country village for sale to a physician who can do surgery and is a successful obstetrician. It will easily pay \$5,000 yearly. Competition light; west 18 miles, north 20 miles, east and south 28 miles. Collections 100%. Best of reasons for selling. For a sober, hard working married man there is money to be made here. Address 315, care of this office.

## FOR SALE

South Dakota practice of \$3,000 to \$3,500 yearly, in best section (southeastern) of state. Town 500, excellent business establishments, school, churches, electric lights, etc. Farmers prosperous; collections always good, one competitor; outside competition 22-18-14-12 miles. Good roads. Price, \$500.00 cash, includes drugs, considerable equipment and practice. Immediate possession. Address 302, care of this office.

## DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	2															
Albert Lea	4,500	5,192	1															
Alexandria	2,681	3,001	1															
Anoka	3,769	3,972	6															
Austin	5,474	5,960	6			1									1			
Barnesville	1,326	1,353	1			1											1	
Bemidji	2,183	5,099	5			1												
Benson	1,525	1,677	3			1												
Blue Earth	2,900	2,319	0															
Brainerd	1,524	2,526	14		1	1											1	
Breckenridge	1,282	1,840	0															
Canby	1,100	1,528	1															1
Cannon Falls	1,239	1,385	1															
Chaska	2,165	2,050	3	1														
Chatfield	1,426	1,226	3															
Cloquet	3,074	7,031	4			1												
Crookston	5,359	7,559	13	1	1	2											1	
Dawson	962	1,318	4															
Detroit	2,060	2,807	3													1		
Duluth	52,968	72,466	105	5	5	14	2	0	0	0	1	0	0	1	3	5	0	
East Grand Forks	2,077	2,533	4															
Ely	2,572	2,572	3													1		
Eveleth	2,752	1,036	8			3											1	
Fairmont	2,440	2,958	1															
Faribault	7,868	9,001	14		1	2					1						1	
Fergus Falls	6,072	6,887	7	1														
Glencoe	1,788	1,788	2															
Glenwood	1,116	2,161	2			1												
Granite Falls	1,454	1,454	1			1												
Hastings	3,811	3,983	3													1		
Hutchinson	2,495	2,368	1								1							
International Falls		1,487	5			2												
Jordan	1,270	1,151	3														1	
Lake City	3,142	3,142	6															
Le Sueur	1,937	1,755	3													1		
Little Falls	5,774	6,078	10	2	1	1												
Luverne	2,223	2,540	3			1											1	
Madison	1,336	1,811	1															
Mankato	10,559	10,365	23		4												6	
Marshall	2,088	2,152	4			1					1							
Melrose	2,591	2,591	5			1	1											
Minneapolis	202,718	301,408	470	43	8	98	13	1	1	0	6	0	0	1	8	24	1	18
Montevideo	2,146	3,056	6			1			1									
Montgomery	979	1,267	3															
Moorhead	3,730	4,840	9			2											1	
Morris	1,934	1,685	4															
New Prague	1,228	1,551	0															
New Ulm	5,403	5,648	11	1	1	1												
Northfield	3,210	3,215	3															
Ortonville	1,247	1,774	2															
Owatonna	5,561	5,658	7	1														
Pipestone	2,536	2,475	2															
Red Lake Falls	1,666	1,666	0															
Red Wing	7,525	9,048	14	1												1	4	
Redwood Falls	1,661	1,666	3			1												
Renville	1,075	1,182	0															
Rochester	6,843	7,844	34		1	2											6	
Rushford	1,100	1,011	2	1		1												
St. Charles	1,304	1,159	2															
St. Cloud	8,663	10,600	11	1											1	1	2	
St. James	2,102	2,102	0															
St. Paul	163,632	214,744	300	23	6	49	2	0	0	0	0	0	0	4	6	18	1	11
St. Peter	4,302	4,176	3															
Sauk Centre	2,154	2,154	4			1												
Shakopee	2,046	2,302	4													1		
Sleepy Eye	2,046	2,247	2															
South St. Paul	2,322	4,510	4			1												
Staples	1,504	2,558	4															
Stillwater	12,318	10,198	14			2											1	
Thief River Falls	1,819	3,174	5	1						1								
Tower	1,111	1,111	0															
Tracy	1,911	1,826	2															
Two Harbors	3,278	4,990	7	2		2											1	
Virginia	2,962	10,473	9	2		3					1							
Wabasha	2,622	2,622	6			1												
Warren	1,276	1,613	2			1												
Waseca	3,103	3,054	3															
Waterville	1,260	1,273	3	1		1												
West St. Paul	1,830	2,660	3	1		1												
Willmar	3,409	4,135	4															
Winona	19,714	18,583	32	2		4											5	
Winthrop	813	1,043	2								1							
Worthington	2,386	2,385	3															

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Fuerepal Septicemia	Accidental Deaths
Adrian .....	1,258	1,111	1															
Aitkin .....	1,719	1,633	2															
Akeley .....			0															
Appleton .....	1,184	1,221	1															
Belle Plaine .....	1,121	1,204	1															
Biwabik .....		1,690	4											1				
Bovey .....		1,377	0															
Browns Valley .....	721	1,058	0															
Buffalo .....	1,040	1,227	0															
Caledonia .....	1,175	1,372	4															1
Cass Lake .....	546	2,011	0															1
Chisholm .....		7,684	3															
Coleraine .....		1,613	1					1										
Delano .....	967	1,031	3	2														
Farmington .....	733	1,024	1															
Fosston .....	864	1,055	1															
Frazee .....	1,000	1,645	0															
Grand Rapids .....	1,428	2,239	3	1														
Hibbing .....	2,481	8,832	8		1	3												
Jackson .....	1,756	1,907	2			1												
Janesville .....	1,254	1,173	2															
Kenyon .....	1,202	1,237	1															
Lake Crystal .....	1,215	1,038	1															
Litchfield .....	2,280	2,333	9			2	1									1		1
Long Prairie .....	1,385	1,250	2															1
Madella .....	1,272	1,273	1		1													
Milaca .....	1,204	1,102	2												1			
Mountain Lake .....	959	1,081	3													1		
Nashauk .....		2,080	4		1	1	1											
North Mankato .....	939	1,279	2															
North St. Paul .....	1,110	1,404	1	1														
Osakis .....	917	1,013	2	1														
Park Rapids .....	1,313	1,850	0			1												
Pelican Rapids .....	1,033	1,019	0															
Perham .....	1,182	1,376	2															1
Pine City .....	993	1,258	1															
Plainview .....	1,038	1,175	1															
Preston .....	1,278	1,193	2	1														
Princeton .....	1,319	1,555	0															
St. Louis Park .....	1,325	1,743	0															
Sandstone .....	1,189	1,818	1															1
Sauk Rapids .....	1,391	1,745	1															1
South Stillwater .....	1,422	1,343	1															
Springfield .....	1,511	1,482	2			1												
Spring Valley .....	1,770	1,817	1									1						
Wadena .....	1,520	1,820	3									1						
Wells .....	2,017	1,755	1															
West Minneapolis .....	2,250	3,022	0															
Wheaton .....	1,132	1,300	0															
White Bear Lake .....	1,288	1,505	2			1										1		
Windom .....	1,944	1,749	2															
Winnebago City .....	1,816	2,555	1															1
Zumbrota .....	1,119	1,138	1															

## STATE INSTITUTIONS

Anoka, Asylum .....	5		1															
Faribault, School for Blind .....	0																	
Faribault, School for Deaf .....	0																	
Faribault, School for Feeble Minded .....	8			1														1
Fergus Falls, Hospital for Insane .....	8	1		1														1
Hastings, Asylum .....	4	1																
Minneapolis, Soldiers' Home .....	14															1		
Owatonna, School for Dependents .....	0																	
Red Wing, State Training School .....	0																	
Rochester, Hospital for Insane .....	15		1	1												1		
Sauk Centre, Home School for Girls .....	0																	
St. Peter, Hospital for Insane .....	13	2		4														1
St. Cloud, State Reformatory .....	0																	
Stillwater, State Prison .....	0																	

## OTHER PARTS OF STATE

	918	52	12	96	6	8	3	0	13	2	0	2	18	50	3	61
Total for state .....	2364	53	39	323	26	10	6	1	26	2	1	12	44	138	6	126

\*No report received. REGISTRAR not doing his duty.  
144 stillbirths not included in above totals.



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The profession of the Northwest will, we are sure, be glad to know that proper recognition of the long and efficient services of the manager who has built up this department of the business of Noyes Bros. & Cutler, has been made by admitting Mr. Frederick Hein to membership in the firm. This is at once an act of justice, pleasant to all men, and a public recognition of the business ability and integrity of Mr. Hein, which is especially pleasing to his host of friends.

Mr. Hein is a recognized authority in all the immense detail of his chosen "business profession," to which he brought a sound scientific college training, including a course in medicine only a few months short of that required to give him the degree of M. D. His devotion to his work, his constant study, and his long association with men of all ranks in surgery and medicine, has made his services valuable to the profession; and his reliable judgment is readily available to the man who is about to equip a hospital, an office, a clinical or x-ray laboratory—or any who may wish to secure the latest and best in any surgical instrument, apparatus, or requirement. It is expert and dependable advice that is free to all clients.

Mr. Hein has surrounded himself with many competent assistants who, in the several branches of his combined department, earnestly seek to render the best service possible to their many patrons whether it is desired by mail, 'phone, or in person.

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Mr. A. J. Hogan, President and General Manager, was formerly cashier of The National City Bank.

Mr. I. C. Bryant, Vice-president and Superintendent of the Laboratories, was for many years connected with the Howard-Holt Co., of Cedar Rapids, Iowa.

Mr. W. W. Smith, Vice-president and Superintendent of the Surgical Instrument Department, was with Noyes Bros. & Cutler, of St. Paul, for the past ten years.

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While the course and progress of acute lobar pneumonia is short, sharp and decisive, the impression made upon the general vitality is often profound, and apparently out of proportion to the duration of the disease. Even the robust, sthenic patient is likely to emerge from the defervescent period with an embarrassed heart and general prostration. In such cases the convalescent should be closely watched and the heart and general vitality should be strengthened and supported, and this is especially true as applied to the patient who was more or less devitalized before the invasion of the disease. For the purpose indicated, strychnia is a veritable prop upon which the embarrassed heart and circulation can lean for strength and support. As a general revitalizing agent is also needed at this time, it is an excellent plan to order Pepto-Mangan (Gude), to which should be added the appropriate dose of strychnia, according to age, condition and indications. As a general tonic and bracer to the circulation, nervous system and the organism generally, this combination cannot be surpassed.



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No. 7

## AUTOGRAFTS IN INFECTED FIELDS\*

BY ARTHUR AYER LAW, M. D., F. A. C. S.

Associate Professor of Surgery, Medical School of the University of Minnesota  
MINNEAPOLIS

Autogenous transplants exhibited in clean operative fields, have taken their accredited place as an accepted procedure in surgery; but the occasional reports, in the literature, of the survival of these autografts in a chronically or mildly infected field, and our own clinical experience paralleling these reports, stimulated a research which would help determine what definite place in surgery the deliberate transplantation of autografts into infected fields had.

From a study of the science of immunity we learn how all the defensive powers of the living animal body are arrayed against infection, both by the formation of antibodies and by an increase in phagocytes. As an active infection becomes chronic, however, the infective organisms lose their original virulence for this individual, which, coupled with the acquired resistance of the tissues and fluids of the host to that infective process, probably explains the tolerance of the transplanted tissue for the infection, for there has been an autoimmunity established in the graft itself.

Clinically and experimentally we learned that most of the autografts possessed a certain definite resistance to infection, but that this slight resisting power was of no avail in severe acute infections, for here the grafts were lost; and it was noted that the transplant survived in part or in toto only after the resistance of all the body tissues had been raised by a prolonged infective process.

Our studies of grafts in dirty fields cover a

period of three years, and include observations on transplanted skin, blood-vessels, nerves, fascia, fat, and bone. The tolerance of skin-grafts for septic fields has long been recognized, especially where these grafts are placed upon a bed of granulation tissue. The latter is, of course, generally infected, yet the grafts practically always take and survive.

Our most striking example of this was shown in a case of complete avulsion of the scalp where the cranium was left entirely bare. After drilling a large number of holes through the outer table of the skull and into the diploë, at the end of three weeks, granulations, springing from the blood-vessels of this diploë, mushroomed out of these drill-holes and later coalesced to form a complete scalp of granulating tissue, which, of course, was infected. Upon this field we grafted a great number of Thirsch autografts, which took and formed an entire new scalp.

In a laboratory experiment, in performing neural tubulization, a segment of the animal's saphenous vein was transplanted into an old infected field. The vein survived; and, notwithstanding the infection, the nerve both proliferated and regenerated.

We believe the tolerance of fascial autografts to a mild or chronic infection has been well demonstrated. Fascia, being a tissue but poorly vascularized and simple in its cellular construction, lends itself very readily to transplantation, and seems to have as much, or more, resistance to infection as any other tissue of the body. We know how it survives in the presence of urine or

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.



Fig. 1.

Fig. 2.

Fig. 3.

Fig. 1. Intermedullary bone graft and cortical inlay for nonunion. Survived in the presence of chronic infection. Union occurred.

Fig. 2. Cortical inlay, deliberately exhibited, in the presence of chronic infection and a sinus of 3 years standing. Case had been operated upon 21 times before by other men. Survival of graft and union.

Fig. 3. Chronic infection with partial survival of graft.

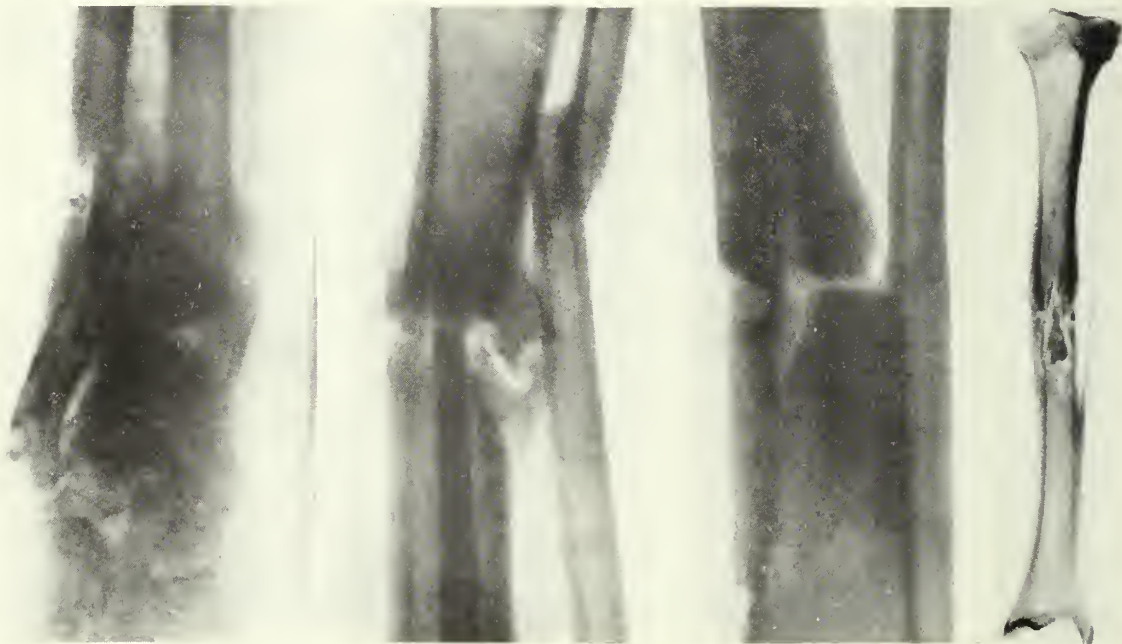


Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 4. Union and survival of ulnar graft in the presence of chronic infection. Picture taken through plaster cast.

Fig. 5. Survival of intermedullary graft and union following compound fracture and chronic infection.

Fig. 6. Survival of cortical inlay and union in the presence of mild infection.

Fig. 7. X-ray of laboratory experiment showing survival of inlay. Deliberately infected from chronic infection in the animal.



bile when utilized to repair or make new ureters or bile-ducts; therefore its survival in the presence of mild infection after the establishment of immunity in its host is expected.

Out of fourteen cases where these transplants were utilized to reinforce the suture lines of radical operations for umbilical and ventral hernias, in four instances the fields were mildly infected, yet the fascia survived and fulfilled its intent. It is recognized, however, that, although these grafts survive the infection, and live, having no specific work to do they ultimately lose their identity as fascia, and are replaced by scar-tissue, but even so they accomplish their surgical purpose.

Fascia lined with fat and used to make an annular ligament for tendons in an old infected

successfully used fat flaps wrapped about nerve trunks—and left exposed in a large granulating wound. Garie reports the use of free fat to fill chronically infected osteomyelitic cavities, the fat-plugs readily taking the place of the Morhoff's bone wax-plug.

Our knowledge, recently acquired, of the fracture and its repair, or of sequestration and involucrum formation from bone-grafts, is in keeping with the acceptance of their inherent osteogenesis; therefore we were led to expect, what later was clinically and experimentally proven, that they do survive either in part or as a whole in mildly or chronically infected fields.

Early in 1913 we transplanted bone from the tibia into the radius and ulna in a case of non-

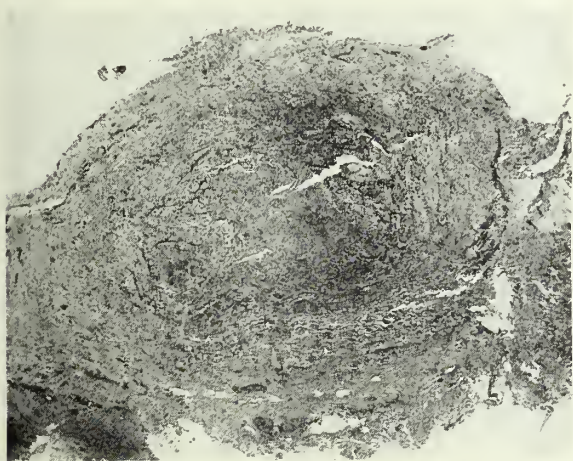


Fig. 8. Micro-photograph of neural tubulization by means of a segment of transplanted saphenous vein showing survival of vein and proliferating neuraxones in the presence of infection.

field, survived, notwithstanding the infection. In doing a fascial tubulization of the musculospinal nerve in the arm of a man who had, as well, an old osteomyelitis of the metacarpal and phalangeal bones, the operative field was mildly infected, yet the tube survived and the nerve regenerated.

We verified these clinical observations by experimental work upon dogs, taking those animals which had been infected days or weeks previously, and had therefore become more or less resistant to that infection. In these dogs we transplanted their fascia lata into the abdominal wall, and infected these new wounds from their old suppurating wounds. That these fascial transplants survived is proved by our gross and microscopical specimens.

We have learned that fat, like fascia, simple in its cellular construction and blood supply, is rather tolerant of mild infection; and we have



Fig. 9. Complete new scalp formed from Thiersch's skin grafts on infected granulation field.

union. This patient's forearm had been chronically infected from an area of pressure necrosis, and at the time of operation the field was studded with small pustules, but, notwithstanding a wound-infection, the grafts healed in and survived and union took place.

Again, in transplanting bone into an old non-united infected tibial fracture, the major portion of the graft survived. Only small sequestræ were thrown off, union occurred, and the sinuses healed.

In one of the cases mentioned under fascial grafts, where there was loss of the musculospiral nerve, and a non-union of the humerus of two years' standing, the patient had an old osteomyelitis of the metacarpal and phalangeal bones; an intermedullary bone-graft had been unsuccessfully tried by another surgeon, so an inlay



taken from his tibia was introduced. The man also had the fascial tubulization of his musculospiral nerve, yet, notwithstanding a wound-infection, his two bone-grafts and his fascial tube lived, and his nerve regenerated through the three inches of that tube.

A girl who, three and one-half years ago, sustained a compound comminuted fracture of her tibia, and who had twenty times been operated on by other men, still had a persistent sinus and non-union. She was 18 months ago operated on by the writer, when an intermedullary transplant, taken from the other tibia, was introduced. Either because the graft slipped up or was not originally introduced far enough beyond the eburnated

cularization of the graft was interfered with by the vast amount of scar-tissue secondary to her twenty-one previous operations.

As in the laboratory experimentation with fascia, we paralleled those experiments in animals

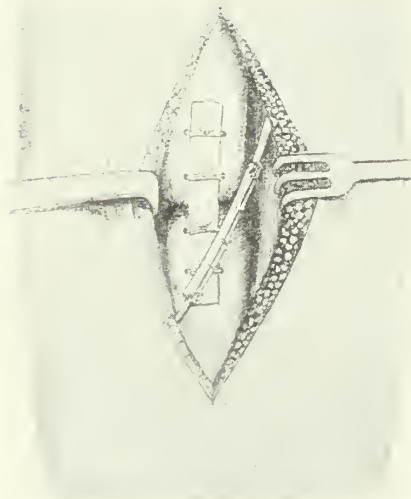


Fig. 10. Fascial neural tubulization and bone inlay for nonunion. Grafts surviving in the presence of chronic infection.

bone of the distal fragment, union failed to occur, and, although much of the graft survived, a sinus still persisted, cultures from which showed the colon bacillus.

In re-operating on this case, four months ago, the original graft was found viable. It had never sequestered, and it bled freely upon section. In view of her long infection we believed she had become immune, so a nine-inch graft, taken from the lower end of the same tibia, was transplanted as a bone-inlay. Now, at the end of twelve weeks, although small sequestre have been thrown off, the wound is healed and the x-ray shows that, while much of the graft has been absorbed or lost, yet some of it remains, and along the periosteum shows beginning proliferation, and union. We believe in this instance the vas-

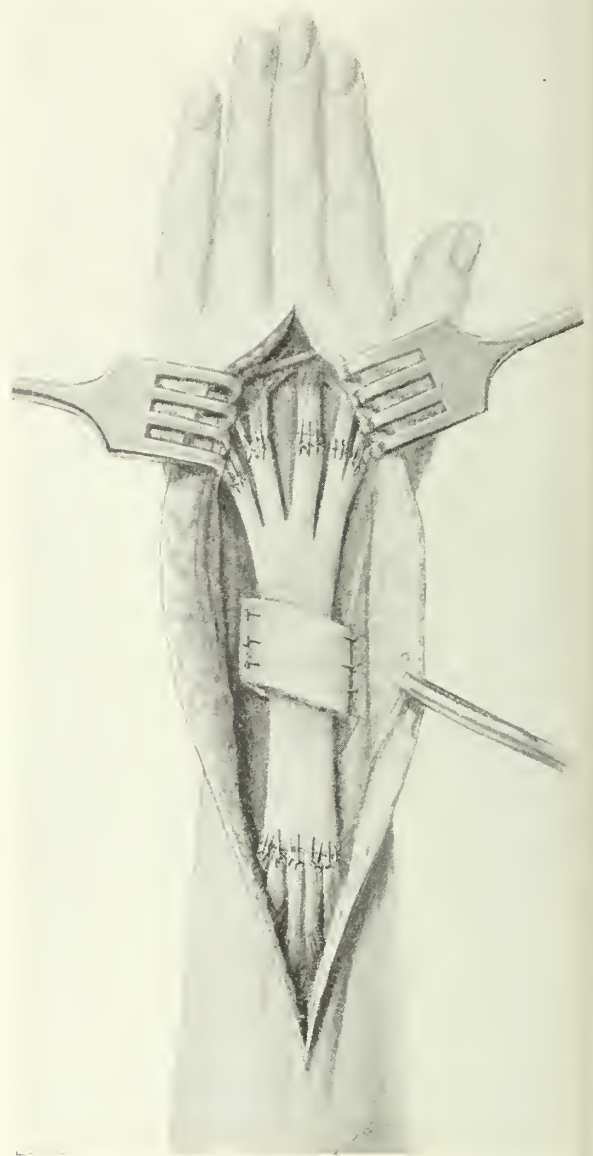


Fig. 11. Restoration of extensor tendons of forearm, using fascia lata. Annular ligament for same, made by fascia lata and fat. Survived in the presence of chronic infection.

with old infection, and grafted bone into infected fields. In every instance the grafts survived, and proliferation occurred as the radiograms show. In both the clinical and experimental cases this growth of new bone was most marked adjacent

to and along the planes of the transplanted periosteum.

Albee and others report the successful transplantation of autogenous bone-grafts into frankly tubercular fields, both in the spine and the knee.

We believe we are justified, then, in affirming from our clinical and experimental studies that autogenous bone-grafts in infected fields, parallel and act much as do cases of osteomyelitis, that part of the graft survives and proliferates, that part is absorbed and part sequestrates, and that the graft is itself osteogenetic and is responsible for the formation of an involucrum and sequestrum.

The early teachings of Sir Arbuthnot Lane and his followers relative to Lane's plates admonished us that the metal plates should never be exhibited in compound fractures or in infected fields. As the experience of many men grew, and the number of cases multiplied, these teachings were modified somewhat, and the reports of the occasional successful use of the plates in just such fields, coming from the great traumatic surgical clinics of the Panama Canal Zone and the Bethlehem Steel Works, disproved such dogmatic teaching, and sanctioned their use in selected cases.

So with regard to autotransplants, we conclude that, while their exhibition in aught but clean fields as a general surgical procedure is not orthodox, yet due to their recognized tolerance for mild infection, in instances of established immunity and where the need is great, their use is not only permissible but advisable.

It is entirely probable that, in the near future by laboratory methods, we may be able to determine the measure of immunity which has been established, and thereby have a more definite indication of the justification for autotransplantations.

#### DISCUSSION

DR. J. WARREN LITTLE (Minneapolis): Dr. Law has presented to the Association a very valuable and interesting paper, and we have reason to feel proud of Dr. Law and Dr. Corbett and other workers in the University of Minnesota; and in the animal experimentation being carried on there, we think we have a chance for our men to do work which promises a very great success.

Many years ago Dr. Sneve, when he was an interne at the Old Soldiers' Home at Dayton, Ohio, had a case of evulsion of the scalp, in which he drilled through the outer table of the skull to the diploë, granulations protruded through the drill-holes, afterward skin-grafts were placed upon these granulations, and the result was perfect. I want to give the doctor credit for this piece of work.

I think Dr. Law is to be congratulated on the results obtained in this case. If any of you ever try to grow a

new scalp or skin over a cranium that has been denuded, you will find it a most difficult thing to do. I have had a little experience with it.

Dr. Law did not say anything about the transplantation of skin in old leg ulcers. I have had some experience in such cases. I have found sometimes in autogenous transplantations that we become discouraged too quickly, and islands of skin grow that we thought had perished.

I have had no experience in wrapping nerves with fat flaps, but am glad to know about it, and when the occasion arrives will be pleased to put it into practice. It is certainly a valuable thing if you can wrap the musculospiral nerve with a fat flap, as Dr. Law has done, and get a good result. I think that is splendid work.

As to skin grafts from other donors: I remember having a boy who was scalded. All the skin was removed from his thigh to the knee, so that there was a large ulcerated area all over the whole leg. By putting on a wet compress and getting it cleaned up, I found I could not take enough skin from the patient to cover the leg. Those of you who have had experience in skin-grafting know it takes a great deal of skin to cover the leg from the knee to the thigh, so I had his brothers come down from the country, and I secured enough skin from them to cover the whole leg and obtained union. The result was very satisfactory. The boy went to the country thereafter, and the doctor who took care of him dusted the leg with iodoform. In the course of two or three weeks he came back without a particle of skin on his leg. I tried it again, but did not have as good results as at first, but finally succeeded. I relate this to remind you that there are persons who are susceptible to the action of iodoform, and this boy happened to be one of them.

Filling osteomyelitic cavities with fat sounds pretty strong to me. If I were to do that and get a result, I should think the Lord was on my side. I would hardly put fat into an osteomyelitic cavity and expect it to act as scaffolding for bone cells. When Dr. Law again has a case like that, if he will telephone me, I will be glad to go over and look at it. (Laughter.)

As to non-union and unions that are distorted: I believe that bone-graft properly placed does stimulate the growth of new bone, and I am glad to know that bone-grafts can be implanted in dirty fields. I have been taught that the graft itself acts only as a framework for new bone-cells, and that all of the old bone is replaced by the new bone-cells. Any argument on this point I will have to leave to my scientific friends in the profession.

With reference to the use of the Lane plates: The plate may serve a good purpose in an old case of compound fracture which cannot be reduced properly, and where the field may be infected. In these cases I do not hesitate to use it, and I believe it is one of the satisfactory places for its use. I am aware that Mr. Lane advises against its use in compound fractures, but I have used it in the presence of pus where the fracture could not be kept in position by other means. If so used, it must not be covered, but must be packed about with gauze and treated as an open wound. The screws will finally loosen, and the plate can be picked out; in the meantime sufficient union may have taken place to avoid deformity.

DR. H. T. NIPPERT (St. Paul): Dr. Law made the remark that where these large or small autografts are used in infected fields the immunity ought to be raised. I would like to ask him how he gauges the raising of that immunity, and what tests he applies? We see these cases in general practice, and there is no way of raising the immunity except to wait for a time, and then turn them over to the surgeon.

DR. J. F. CORBETT (Minneapolis): Before discussing transplants in infected fields, I would like to say a few words in regard to heterogeneous transplants and transplants of tumors in non-susceptible animals. The failure of these to take has been ascribed to one of three causes: First, cystolysis of the transplanted cells through antibodies in the fluids of the host, but this hypothesis was considered to lack proof by Ehrlich.

Second, failure of the host to provide stroma. Russell and Woglan considered the transplant to have negative chemotaxis for the cells of the host, causing failure for ingrowth of stroma cells to the transplant.

Third, cutting off nutrition to the transplant by round-celled infiltration. These cells are called by Rous and Murphy lymphocytes; by Ehrlich, lymphoid and plasma cells. In plain words, inflammatory cells. The fact that the transplant in non-susceptible animals remains intact for four or five days and only disappears after round-celled infiltration is established, indicates very strongly that the failure of these transplants to grow is due to lack of nutrition. So in infected fields any inflammatory reaction about the site of the transplant would prevent the necessary nourishment of the transplanted cells. In addition to this, in transplants in infected fields we have another factor,—loss of resistance to infection. This is analogous to Field Smith's experiment, who found pieces of tissue deprived of their blood supply in the test-tube have the faculty of reducing the bactericidal power of the blood; therefore, free grafts favor the growth of bacteria, and set up an inflammatory reaction, with the result that the transplant is devitalized. Before a transplant can take in an infected field there must be such a degree of immunization that this inflammatory reaction does not take place, and that the devitalized graft cannot destroy the resistance of the fluids to infection; therefore, transplants should not be undertaken before healing is well advanced in the infected field.

When a transplant of bone is made too early in an infected field we may have as a result osteomyelitis. In such a condition, ultimate healing may occur through the formation of an involucrum and throwing off of the sequestrum. In certain of our animal experiments we have gotten healing through involucrum-formation when grafts were put in an infected field; in other words, we have created osteomyelitis. On the other hand, in properly selected cases, we have in animals that have been thoroughly immunized with a certain organism—been able to get a transplant infected with the same organism to heal by primary union. These animals were immunized by previous infection with the organism that had been used, and are not exactly comparable to transplants in an infected field, in that the transplants were made in perfectly healthy bone in a field that was free from previous existing inflammatory products. When we do actual transplant in an infected field this condition can be simulated by removing every bit of inflammatory tissue before inserting our

grafts, but we have no evidence to show that primary healing can ever occur when inflammatory products are not thoroughly removed. Therefore, I should lay down two principles as established in transplants in infected fields: first, a high degree of immunization; second, the removal of inflammatory products from the neighborhood of the grafts.

DR. ARTHUR T. MANN (Minneapolis): I have a few slides I should like to show in connection with this paper, and report some cases of bone-grafts in the presence of pus.

The first case is that of a little Assyrian girl of about seven years, who was run over by a motor-cycle. She sustained a crush of the left foot, left calf, left knee and thigh, and a compound fracture of the pelvis through the vagina, besides a fracture of both bones of the right leg. The compound fracture of the pelvis and the fracture of both bones of the right leg healed nicely. The crush of the left foot resulted in gangrene of the little toe and the metatarsal, and was slow in healing.

The knee injury is the one of special interest. The knee was so crushed that it felt like a loose bag of bones, and until we got the x-ray pictures we could not tell exactly what the condition was. This slide shows the knee, but does not indicate exactly what the injury was. This second slide, a lateral view, shows that we had a fracture about one inch above the epiphyseal line with backward and upward displacement of the condyles, and the condyles were fractured apart from each other. This allowed unusual mobility in all directions.

One of my associates a little later, under a general anesthesia, tried by the ordinary means to reduce the fracture, and hold it in place. The result was unsuccessful. From this crushing injury she had some blisters and raw places, and they had become mildly infected, but I thought the time had come when we must do something, and nearly one month after the accident we decided on an open operation. So with an incision on both sides I went in, and found we had a condition such as I have described. The external condyle, when I took hold of it, came out in my hand, so that we had a loose fracture of the external condyle, and a fracture of the internal condyle. After replacement I put on a small Lane's plate to bring the internal condyle in line with the femur. I was unable to get the external condyle back on account of a few rough fragments, and I trimmed them down to get it in. We have here an autotransplant of the external condyle of the lower end of the femur, the Lane's plate giving us the line for the internal condyle and the other condyle is put into a pocket along side of it without screws or plates to fasten it. The patient had, about the eighth or ninth day, a rise of temperature and infection of the fat layer of the thigh. We thought it did not extend to the bone transplant, and treated it as a superficial cellulitis with a large amount of pus discharge. With a probe we could not find any place that went to bone, but at the end of a month we put her to sleep, and found out what we had. I took off the cast, and found a sinus leading down to the transplant of the external condyle. I put my finger on it and my assistants put their fingers on it, and pus was coming out. That was the situation and I expected the external condyle to come out as a foreign body, but I thought if I could leave it there longer in the pocket in which it was it



might be able to grow a shell of bone about it, which would hold the articular surface of the knee and give her something to walk on, which would be very much better than one condyle and the lateral motion which would result from no bone on the other side. Then the next thing the interne told me was that this was drying up, the discharge had stopped, then it opened up again, and I supposed we would lose bone that had closed in. However, the wound soon closed and has remained closed, and the bone is still in there, an autotransplant of the external condyle, which has lived in the presence of pus.

This picture was taken fourteen weeks after the insertion of the external condyle. You see the extent of motion after the first cast was removed. We have a movable knee. This picture was taken ten days after the other picture, and shows flexion to more than a right angle. I ordered crutches for her, and this is the situation: we have an autotransplant of the external condyle of the lower end of the femur with a movable knee, and the transplant, we know, has been in a septic area. The sepsis started as a superficial cellulitis working down to the bone. Our Lane's plate is still in place on the other condyle; it was closed off probably so that infection did not reach the plate.

I cannot show the remaining slides as my time is up.

Dr. R. E. FARR (Minneapolis): I believe that Dr. Law's point regarding immunity has direct application to the question asked by Dr. Nippert. There is something about the condition of these patients which allows the transplant to live. Of course, we must agree that we have a much better chance of our transplant living in a case where there is no infection present, and if these animals that Dr. Law operated upon had had no infection before operation, but were infected at the time of operation with the same organisms, the chances for success would have been greatly reduced.

Years ago, when infected wounds were more or less frequent, it was not uncommon to see large sloughs of fascia following operations upon the abdominal wall. This fact led Dr. Davison, of Chicago, to bring out a particular technic for hernia some years ago. He emphasized the necessity of leaving the aponeurosis of the external oblique attached to the fat so that it might have nourishment from one side. Transplantation of fat has been accomplished in bone-cavities, but I believe the "takes" were not in infected cases. Skin transplants do take in infected fields, but not as a rule. It is unusual in my experience to have a skin transplant or graft take in an infected field, and I have, wherever I could do so, used the pedunculated flap, and even in such cases in the presence of a certain amount of infection the flaps would suppurate and fail to take in a complete degree. Whereas, where there was no infection our results were absolutely perfect.

I believe that Doctors Law and Corbett are travelling along the right line, and that some time in the future we may be able to designate which cases may be transplanted with any kind of tissue at a particular time.

Of course, it will be impossible to inject bacilli from one part of a patient's body into another to find out whether an abscess is going to form, but I venture to say that there will be some method developed by which we shall be able to tell when we have very good chances of success.

Dr. LAW (closing): In regard to what Dr. Little said relative to the case of Dr. Sneve, I will say that I got my original idea from a case which Dr. Sneve reported at least twenty years ago.

In answering Dr. Nippert, you may remember that in the last paragraph of my paper I indicated that it was a utopian dream of the future that we might have some method of measuring the amount of immunity which had been acquired. Dr. Wright is working along the line of measuring the extent of the antibodies, and this may ultimately give us some measure of immunity.

In the patient whose case I reported who had had twenty-two operations done by other surgeons: she was in desperate straits, so we felt warranted in taking desperate chances. Our first observations on the survival of grafts in infected fields were accidental. One of the first bone-grafts I put in was not properly done. The bone ultimately slipped at one end, and projected from the wound, so I took it off with rongeur forceps, and to my surprise found that the bone was viable and bleeding in the presence of a dirty field. Following the hint we began to exhibit our transplants in dirty fields, in selected cases. In our animal experiments we selected those animals which had had a previous infection, and as controls those which had not been infected. These transplants of bone in dirty fields greatly simulate osteomyelitis. There is involucrum-formation and sequestration in the animals that have had their immunity built up by a long process of infection, and these are the ones in which the grafts heal. (Referring to the slide.) Here is a case which had an intermedullary transplant, a cortical inlay, and a neural tubulization where there were four inches of fascia lata utilized. Notwithstanding infection, all three of the grafts survived, union was established, and the patient got regeneration of his nerve. In the case of non-union of both bones of the forearm I put in two grafts, and later was obliged to take part of one out. The other survived, and, notwithstanding the infection, the patient got union of both bones.

In the case of the man who had a fracture of the tibia and persistent non-union for nine months I removed the fibrous tissue, inserted a graft from the other tibia, and you can see from the slide he has union. (Referring to other slide.) This patient had had nine operations. We call attention to the eburnated sclerosed bone on the ends of the proximal and distal fragments. You must put a viable transplant with its periosteum in contact with viable bone, above and below this sclerosed bone, bridging the defect of the bone and the sclerosed bone as well. If this is properly done, you will get union in every instance.

## AUTO-INTOXICATION: A POSSIBLE CAUSE OF RETROBULBAR NEURITIS\*

By J. A. HOFF, M. D.

YANKTON, SOUTH DAKOTA

I was led to review the subject of auto-intoxication through a case of blindness that came under my care some months ago, which presented the characteristics of an acute retrobulbar neuritis. The diagnosis was made from the history of the case and the clinical and physical findings. This was relatively easy, but to find the etiological factors was where the perplexing troubles arose.

The history of this case is as follows:

J. B., male, aged 43, American citizen, although born in Denmark, had no serious illness as a child; farmer by occupation; always has been and has the appearance now of a rugged and healthy farmer; had measles about ten years ago, since which time he says his eyes have seemed somewhat weak, but was always able to see well and read without the aid of glasses and without discomfort; reads considerably during the winter months; has eight children all well and strong; wife, well; one child died as baby of pneumonia; no eye trouble in any of his relatives; no history of syphilis; does not drink or use tobacco in any form, nor ever has.

Present history: one week ago he noticed sight failing rapidly. There was a dimness as of a dark cloud over each eye with clear daylight on either side of the cloud; headache the latter part of last week and forepart of this, extending from in back of eyes frontal to occipital region; no headache today; is subject to attacks of rather severe headaches associated with what he termed "bad stomach"; was able to read newspaper Sunday, but not at all on Monday, nor at any time since; and daylight is rapidly disappearing, so that he is now unable to get about alone. This day is Friday, April 25, 1914.

Examination: male; above average height; erect, rugged in appearance, and weighing 180 to 200 lbs.; looks perfectly well; complains of sudden blindness, and distress with some pain in stomach and bowels; tongue, coated; abdomen, somewhat distended and tender to pressure over gastric region; eyes appear normal, excepting that the pupils seem somewhat small, but they react normally to direct light and accommodation.

Vision: O. D., able to count fingers at three feet with great effort; O. S., perception of light only; ophthalmoscopically, all media clear; disc, swollen; margins, blurred; veins, congested and tortuous; arteries, contracted; no hemorrhages; all more marked in the left eye.

The urinary findings were negative, but tests were not made for acetone and indican. Two Wassermann tests were made by two different laboratories, one reporting a positive finding and the other negative; but there was no evidence of syphilis in any form, and it

is my opinion that it had absolutely nothing to do with this patient's condition.

This patient was placed in the hospital, and vigorous eliminative treatment by the use of calomel and magnesium sulphate salts was instituted. Later, potassium iodid was given with inunctions of mercury. Upon the second day in the hospital the peripheral vision began to clear up, and each day from then on improvement was noted. Two weeks from the date of entrance into the hospital his vision had improved enough so that a perimeter chart could be made, and I found the following: I used the blackboard with the patient's eyes about 40 cm. from the board, and color-discs 18 mm. square. The form field was normal; likewise that for the white color. Blue was markedly contracted, and there was absolute scotoma for red and green. Five days later, tests were again made, and showed the field for blue considerably enlarged; red and green still gone except that he called red "tan" when placed over the point of fixation. One week following the last color-test I found the blue field still enlarged, red and green still absent with red a distinct tan or almost "red." Twelve days following the last test found the color-fields practically normal, and remained so in the number of tests that were made later. During this same time his vision gradually improved, so that by the time the color-fields were normal, the vision in the right eye was 6/6 and in the left 6/7.5. Vision of the left eye gradually came up to almost 6/6, but never became quite as acute as that of the right eye. Whether or not this condition was true before the onset of his disease I am unable to say. The vision of this patient remained normal, and there has been no relapse of his former trouble.

In the transactions of the Section on Ophthalmology of the A. M. A., 1914, and published in the *July Journal*, Dr. Lee Martin Francis, of Buffalo, N. Y., reported two cases of retrobulbar neuritis associated with marked acetonuria. One was a child one and one-half years old and the other an adult thirty-one years old. Dr. DeSchweinitz gave a very excellent discussion of this paper; and among other things he said, "Some of the slighter forms of the so-called retrobulbar neuritis may depend on an edema

\*Read at the 34th annual meeting of the South Dakota State Medical Association at Sioux Falls, May 18-20, 1915.

which is analagous to the acute swelling of the eyelids with headache occasionally encountered as the result of errors in diet or of intestinal auto-intoxication. It is perfectly conceivable that an edema may arise in the optic nerve, which would bring about a condition of elevated pressure in the optic fibers, especially in the neighborhood of the optic foramen."

In *Colorado Medicine* for May, 1914, Dr. H. M. Thompson, of Pueblo, Colo., is the author of an article entitled "Eye-Lesions Resulting from Auto-Intoxication," in which appears this statement: "I was prompted to write this paper through my belief in the possibility of auto-intoxication from the intestinal tract having much to do with the development of the so-called toxic amblyopia. In the different text-books to which I referred I found no mention of such a probable causative factor. Hence my delusion." In the discussion of the paper by Dr. F. E. Wallace he makes this statement: "Retrolbulbar neuritis, we have found out, can be caused by intestinal toxemia, and a speedy cure will follow these cases when we eliminate the toxemia from this source."

In the *Ophthalmic Record* for March, 1911, Dr. F. P. Calhoun, of Atlanta, Ga., reported a case of acute retrolbulbar neuritis caused by an intestinal toxemia in a school-boy twelve years of age. He lays stress upon the findings of indican in the urine as an index of intestinal putrefaction. He states "clinically there appears to be an intimate association between albuminous putrefaction and intestinal toxemia and indicanuria, or whatever it might be called, and certain diseases or manifestation."

In this same journal in the December, 1912, issue, Dr. Frank Allport reports a case of retrolbulbar neuritis of toxic origin. In this article he emphasizes the finding of a large amount of indican and bile-pigments in the urine, and that the clearing up of the blindness was coincident with the elimination of these substances from the urine. In his conclusion he says, "This case is interesting as clearly showing the etiological possibilities of an intestinal toxemia upon an optic nerve and the satisfactory and speedy result of prompt and proper treatment."

Now, as regards the etiology in this case I will say that thorough search was made for the cause of his acute condition and particularly for some exogenous toxic substance that he might have taken into his system, but nothing was found. There were no grounds on which the likelihood

of chemical poisoning of any sort might be entertained, and being a farmer his work was not that which would expose him to any poisons in its performance, neither had he been taking medicines of any kind. I am therefore unable to state just what the cause of this man's condition was, but I am strongly suspicious that it was due to a gastro-intestinal auto-intoxication. While my conclusions are not founded upon definite findings of endogenous toxins, the clinical findings and course of the disease under treatment point strongly in that direction. Moreover, every other factor as a possible etiological entity was eliminated. Much has been written upon the significance of the presence of indican and allied bodies in the urine; and yet we find the laboratory men ununited in their views as to their true interpretation. Clinicians of general medicine, as well as men of special lines of work, relate cases more or less obscure in every detail, and yet in which there is evidence of intestinal toxemia; and under appropriate treatment they recover. A search in the various text-books and current literature gives one very little light upon the subject. The text-books speak of iritis or uveitis due to auto-intoxication, but not of retrolbulbar neuritis. Many prominent physicians hold that chronic iridocyclitis with vitreous opacities and recurrent iritis, are due to auto-intoxication, or, at least, have a contributing factor in their cause. Observation and experience have taught us that this is true.

The acute form of retrolbulbar neuritis is characterized by the suddenness with which blindness develops. In severe cases the loss of sight may attain to such a degree in a few days that all perception of light is abolished. The obscuration of vision always begins in the center of the visual field, and rapidly progresses over the peripheral field of vision to complete or nearly complete blindness inside of a week. Externally, the eye may appear normal, the ophthalmoscope may show scarcely anything, but usually there will be some swelling of the disc and blurring of its margins with engorgement of its veins and diminished caliber of its arteries. These symptoms are often accompanied by more or less severe headache and pain in the eyeballs, the latter being aggravated by movement of the same or when they are forced backward into the orbits. The attack may be more severe in one eye than in the other.



## DISCUSSION

DR. J. G. PARSONS (Sioux Falls): Dr. Hohf is to be complimented on his excellent description of the case he has presented to us.

The subject of retrobulbar neuritis is one that is of considerable importance to the man engaged in eye work; and whether it be of toxic origin or of infectious origin, is something that is likely to be passed by if we are not on the lookout for things of that kind, particularly if, as sometimes happens, only one eye shows evidence of trouble. This is not so likely to be the case in cases of palpably toxic origin, the same as the one described by Dr. Hohf. But perhaps one of the most insidious forms of retrobulbar trouble is that due to infection involving the accessory nasal sinuses, the posterior ethmoid cells, and the sphenoid. We have here an analogous condition, as far as the actual pathology is concerned, to that which you have in a toxic condition, the trouble beginning with the central fibers of the optic nerve and shutting off central vision first, and gradually spreading out toward the periphery. As was determined by Hirschfeld, the pathology that is concerned there is with a disturbance of the so-called papillomacular bundle of the optic nerve, the central fibers which are in the central part of the nerve; and in cases of edema of the optic nerve in accessory sinus disease the force of the edema seems to be expended upon these central bundles, which give most of the trouble, and consequently the diminution of vision comes at that point more acutely. The probabilities are that, in those cases such as Dr. Hohf has described and which he has quoted, there is some localized edematous process about the sheath of the nerve, which is producing most of this trouble. I doubt if we can account for these conditions on generally toxic lines satisfactorily. It is a well-known fact that intestinal intoxication alone counts for quite a number of disturbances of vision, but these are quite largely transitory. Probably all of you have seen people who have what many patients are disposed to call the "flickers,"—an absorption of toxic material which produces a fleeting scotoma, usually with scintillations, starting from a comparatively small and relatively central area, which spreads out following practically the same route that is taken in the more slow process which you have with edema in these retrobulbar cases. But it is quite evident from the nature of these conditions that the trouble is due more to a toxic impression upon the cortical areas rather than upon the retrobulbar portion of the optic nerve itself.

Another insidious part of this condition, as Dr. Hohf pointed out, is, that there is very little to be noticed on the outside. The eye may be apparently in normal condition, but it is a good safe rule to take into consideration that where there is a disturbance of vision, without some decided physical evidence on the outside, particularly where a rapid diminution of vision follows, it is well to suspect some trouble with the retrobulbar region of the optic nerve, and, as has been the keynote of this discussion, all the way along, find it early. (Applause.)

DR. W. J. MAYTUM (Alexandria): I wish to report a case that comes within the scope of this paper. About two months ago I was called to see a woman who was pregnant and the mother of eight children. She was suffering with severe headache, dizziness, and loss of

vision, not complete, but she could not count fingers at the distance of four feet. There was some edema of the limbs, but no albumin; otherwise she felt as well as usual. I made a diagnosis of auto-intoxication, and treated her accordingly. At the time of confinement I was called, and delivered her of twin babies, one of which was dead, probably from the time I was first called to see her. She made a good recovery, and in three weeks her vision was very much improved, and is now all right.

DR. R. D. ALWAY (Aberdeen): I would like to report a case of retrobulbar neuritis that I had in my practice some four or five years ago. A woman about fifty-two or fifty-three years of age consulted me for her eyesight, and she gave a history of failing vision of about three weeks' standing. At the time she consulted me she was almost blind in one eye, and had a good-sized central scotoma in the other. Ophthalmologically, she showed a very much swollen nerve-head in the bad eye, and edema of the blood-vessels to a certain amount in the other. She was a woman of highly neurotic temperament, and at that time she was in mourning for her husband. He had also been a neurotic. She also gave a history of some gastro-intestinal trouble.

I referred her to her family physician, who diagnosed gall-stones. She was operated on for this condition, and her vision entirely cleared up, and after correcting her for myopia she had normal vision. (Applause.)

DR. F. C. SMITH (Yankton): The subject of retrobulbar neuritis is of particular interest to the man who works in the special field of the eye, because of the considerable difficulty in diagnosis, and particularly as to the etiology. The text-books say very little of auto-intoxication as a possible cause, but have spoken generally upon the subject and suggested some particular cause. We know, of course, of wood alcohol and various drugs that produce conditions of amaurosis which closely resemble the retrobulbar form, so far as the physical findings are concerned. The term auto-intoxication is so vague in its meaning and application that it hardly serves as an etiological factor in modern ophthalmology.

In this connection it may be interesting to report a case that came to my attention very recently, that of a young man about eighteen years of age, who had just recovered from a very severe attack of pneumonia. During that attack for the first few days of his illness he was in a high degree of delirium. The physician who referred him to me and who attended him throughout his illness, on the third day of his disease gave him a very large dose of quinine, 90 grains within twenty-four hours. When he was taken ill, so far as was known, his vision was normal, and nothing was known of his disturbance of vision until about the sixth day of his illness when he became conscious again, and his first statement was to the effect that he could not see anything. He could not tell when a light was brought into the room in the evening, or when the shades were raised at the windows in the morning; in other words, he had not even light perception in either eye. That condition remained during his illness and during his convalescence. He was sent to me just as soon as he could make the trip to Yankton, and when I saw him he was absolutely blind. He had no perception of light in either

eye. The findings so far as the ophthalmoscope gave them to me, were practically those that Dr. Hohf found in the case that he cited. I made the diagnosis of retrobulbar neuritis provisionally and on general principles. Since I could find no particular indications for therapy I gave him moderate doses of potassium iodid.

I saw this patient about ten day ago, and just a day or two ago his family physician tells me that his vision has improved so that now he can tell the shape and form of a dandelion. He is a farmer boy, and that is the only opportunity that has been given to test his color-vision.

I was not informed until recently that he had had these large doses of quinine, and I am now rather inclined to think that probably the very large dose, that is, 90 grains within twenty-four hours, was the cause of his disturbance of vision because of its effect upon the optic nerve and that this is a case of quinine amblyopia. That fact, while I am unable to prove it, might be interesting to the general practitioner, since I believe these massive doses of quinine are not infrequently given in cases of pneumonia.

Since the above was spoken I have seen the patient several times. His vision is rapidly returning, but the fields are markedly contracted.

DR. C. V. TEMPLETON (Woonsocket): In connection with the remarks made by the last speaker, I wish to say that I had some unpleasant experience a number of years ago on account of the administration of an exceedingly large dose of quinine. At that time I was practicing medicine in the South, where we had a good deal to do with malarial trouble, and quinine being considered a specific, or at least the best antidote for malaria we then knew of or probably now know of, I administered it for its full effect. I had a very desperate case upon my hands, where I thought best to administer it in large doses, or rather small doses at short intervals, which from their accumulative effect gave the effect of a large dose. I had just had a patient shortly before who developed a jaundice with bloody urine, and after about a week's sickness died. A short time following that I had another case that started out in the same way, first becoming jaundiced, and in a little while there began the passage of bloody urine; and it looked as if the result was going to be the same as in the other case. In the meantime I had looked up the subject carefully, and found that some of the authorities recommended large doses of quinine, or smaller doses repeated persistently, to overcome what was supposed to be the malarial origin of that disease. As best I remember I was giving it only in

five-grain doses, but repeating it about every two hours. After I had given it for something like twenty to twenty-four hours, probably fifty or sixty grains of quinine altogether, the patient began to lose vision. She was still conscious. She was a girl, probably fourteen or fifteen years of age, and she began to tell the people that she could not see well, that everything appeared dark in the room. I was at once notified. The parents of course, realizing the seriousness of the situation thought the girl was dying, and I did not know but what they were right about it. But recognizing the fact of that effect of quinine upon the optic nerve, I directed the withdrawal of the quinine at once, and the girl, I am glad to say, went along to a good recovery, and in a very short time her vision was restored completely, which led me to believe that while the effect of the disease might have had something to do with the amaurosis, or loss of vision, I rather attributed it, on account of the rapid recovery after the withdrawal of the quinine, to the large doses of this drug which had been administered. (Applause.)

DR. HOHF (closing the discussion): In regard to the administration of quinine: it is a well-known fact that quinine will cause retrobulbar neuritis. The case that I reported was of great interest to me for three reasons: first, the very rapid progress of the disease, resulting in blindness; second, the lack of definite etiology; and, third, the complete restoration of vision as the result of treatment.

In regard to treatment: there we may speculate a good deal as to what might have happened if he had not been treated. I have asked myself the question many times as to whether or not he might have recovered as well without treatment; but I believe not. I believe that this particular patient was caught in the nick of time. That is, if thirty-six or forty-eight hours more had elapsed, atrophy of the optic nerve would have set in, with a final partial recovery of vision, and a loss commensurate with the amount of atrophy that had taken place. So that in cases of this kind I think it is well that we eye men especially be on our guard, and not only treat these cases vigorously where indicated, but we should, if possible, try to establish a definite etiology. One of the weaknesses in this particular case reported was lack of laboratory tests and examinations.

The urine I think should be thoroughly examined, and also the feces, the blood, and all the secretions; and a correct and complete tabulation should be kept. (Applause.)

## THE PRONE POSITION AND ITS USES\*

BY M. M. GHENT, M. D.

Attending Gynecologist to the City and County Hospital

ST. PAUL

About 4 A. M., February 15, 1914, an obstetric case of mine was admitted to the Mounds Park Sanitarium. The nurse in charge called me by telephone, and said the pains were coming regularly and were rather severe and about fifteen minutes apart. The patient was a multipara, and of little less than medium size, so, without considering the size of the patient, I instructed the nurse to give a hypodermic of morphine, one-fourth grain. Six hours afterward, I delivered the woman of a normal child. As soon as the cord was severed, the child began to turn blue. The heart was very strong, but a little slow for a baby. It was soon evident that we were dealing with a light case of morphinism. We first tried artificial respiration, but with no results. Then I inflated the lungs with my own breath. The cyanosis was becoming worse. We then placed the baby in a hot bath with no results. Then I dilated the anus, and again placed the child in the hot water, all the time keeping up artificial respiration. By this time the feet, hands, and ears were very cyanotic. We had then worked for half an hour, when I happened to think of an article, which I had read somewhere, about placing the patient in the prone position in case of dilated stomach. I told the nurse to sit down and take the baby across her knees, letting it lie on the chest with the head down. In less than ten seconds the baby let out a cry that could be heard all over the room, and in five minutes the cyanosis disappeared, and the baby has been well ever since.

De Lee says, in his text-book, "As pregnancy nears the end the fetus' blood becomes more and more venous, which is due to the gradual narrowing at the ductus Botalli and the ductus Arantii. As a result of the slight pressure which the head undergoes during labor, the blood is forced out of the head, and a moderate degree of anemia of the base of the brain, the medulla included, ensues. As a result the respiratory and cardiac centers in the medulla do not receive good blood. Since the respiratory center is naturally torpid, almost inactive, it responds very slowly and late to this condition."

Only cases of asphyxia livida will react to the

prone position, because this condition is due to a paralysis of the respiratory centers. The prone position is of no benefit in asphyxia pallida.

Less than a week later I had another confinement at Bethesda Hospital. The presentation was an occipitoposterior. I delivered the child with forceps after six hours of severe labor. The baby was plump and fat, weighing nine and one-half pounds. At birth the baby seemed perfect in every way. The second day the baby had a temperature of 101°. It took water; and as soon as the milk came in it nursed and seemed very hungry and strong. The third day the temperature was up to 104°. There was no cough, the bowels moved, and otherwise there seemed to be nothing to be found. The next twenty-four hours the baby gradually grew worse. The temperature went to 107°; respiration, 110. The next morning, the fourth day, when I came the temperature was 108°, and the respiration was 120, and the child was pulseless. Three or four colleagues saw the baby in this condition, and said there was nothing to do. The child was dying. The cyanosis which had shown a little on the third day was striking on the fourth. It then occurred to me, from my experience in the other case, that the cyanosis might be benefited by turning the child on its chest. We did so, and in a few minutes we thought we could see an improvement in the color. In four hours the temperature dropped from 108° to 100°. The respiration was 60, just one-half of what it had been. Remember, there was no cough, no bronchitis, and no pneumonia. The baby had a light case of conjunctivitis, and we were using a weak solution of argyrol. The first evening after we had turned the baby in the prone position, the night nurse took the baby out of the room, and dropped some of the argyrol solution in the eyes. Of course, the baby was lying on its back when the nurse dropped the medicine in the eyes. Soon afterward she brought the baby back into the room where the mother was, and the mother exclaimed, "My baby is black again, turn it on its face," which the nurse did, and in a few minutes the cyanosis disappeared. Our real trouble started when the baby had to be given nourishment. It was so weak that it could not swallow; to say nothing about nursing. When we would turn it on its

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.



back to take nourishment or water, the cyanosis would be noticeable at once. Then we learned to feed it with a medicine dropper by turning the face a little to the side, but still having it in the prone position. It took two weeks of such handling before the baby could be turned even on the side. Today it is rather well nourished, happy, and healthy.

The following two cases were reported to me by Dr. Ernest Sterner, who observed the above case throughout the course of the disease:

**Baby West.** Born March 17, 1915. Spontaneous delivery. Large, healthy-looking baby. On the third day the baby seemed uneasy, was slightly cyanosed, and cried frequently. The temperature was  $105^{\circ}$ ; it had previously been normal. The baby was placed on its stomach according to the method I had seen Dr. Ghent demonstrate. Temperature, four hours later, was  $100^{\circ}$ , and the next day it was normal. Recovery, uneventful. Breathing and color improved immediately after the baby was placed on the stomach.

**Baby Hanson.** Born May 6, 1915. Second baby. Rather difficult instrumental delivery. Weight, eleven and one-half pounds. Cried lustily, and appeared in every way perfect the first forty-eight hours, when it seemed distressed and became blue. Breathing very labored. Extreme cyanosis. Rectal temperature,  $108.4^{\circ}$ . This baby was dying. It was placed on the stomach. After fifteen minutes the color was better, the temperature was  $105^{\circ}$ , and the child was breathing easier. Two hours later the temperature was  $101^{\circ}$ , and was normal the next day. The nurse left the case, instructing the woman attendant to keep the baby lying on the stomach most of the time. This the woman did not approve of, and placed the baby on its back for a period of four hours, when it was discovered that the baby again was cyanosed, and the temperature was  $105^{\circ}$ . The temperature and cyanosis again disappeared after the baby had laid on its stomach for a few hours. There has been no trouble since. The child is now healthy and strong.

So far as I know, these last three cases represent a disease-picture that has never been described. As the history in my case states, the baby was strong and normal at birth, nursing and sleeping well, as were Dr. Sterner's patients. The rise in temperature that accompanied the cyanosis, came on gradually, taking about thirty-six hours to reach the climax, which was  $108^{\circ}$ . No doubt Dr. Sterner's two patients developed more rapidly, and were cut short by the treatment.

Let us describe this disease:

**Definition.**—An acute disease of babies, characterized by cyanosis and high temperature.

**Etiology.**—Supine position, that is, lying on the back, helpless, and unable to move at this young age.

**Symptoms.**—Restlessness, breathing more rapid than normal, cyanosis slight at the beginning and growing more intense as the disease progresses. The cyanosis is the one striking symptom about the condition, and the

child may die at this time before other symptoms develop. Rise in temperature is the next noticeable symptom, and is probably due to the retention of excretions and changed metabolism. In the later stages the patient becomes pulseless with very rapid respiration.

To reiterate the symptoms: Restlessness in what was a normal child, cyanosis, refusing to eat or drink, high temperature, pulseless, and rapid respiration. For want of a better name I have called this condition *acute febrile asphyxia gravis*.

**Treatment.**—Place the patient in the prone position, that is, on the stomach, and leave it there till the cyanosis will no longer return when the child is placed on its back.

A few months after I made this observation I was relating my experience to Dr. Holcomb, and he promised to try it if he had an opportunity. A few days later he was called in a great hurry to a baby where he had delivered the mother two weeks before. The labor was normal, and the baby had not been ill up to this time. When Dr. Holcomb reentered the house it was plain that the baby was dying. The extreme cyanosis and shortness of breath were the predominant symptoms. The mother said the baby had not been ill till that morning, when she noticed it was black and very short of breath. She was sure the baby was dying, and she telephoned for the doctor. Dr. Holcomb says there were no fever and no lung findings. Remembering our conversation he decided that this was a case to try the prone position on, so he placed the baby on its stomach, and it seemed to breathe easier. Dr. Holcomb remained at the house about half an hour, when he was sure the cyanosis was better and the child was breathing easier. Two hours later I saw the child with him, and he assured me it showed marked improvement, but it looked very ill to me. I expected it to be dead in half an hour. Dr. Holcomb telephoned me that night that the baby had been kept on its stomach all day, and that it had a normal color and was breathing naturally. This was an afebrile case, because the condition developed so rapidly that the baby would have died before the rise in temperature came, had the treatment not been applied.

A few months later I was telephoned to go at once to see a little boy that was dying. Dr. Schoch had been treating the patient who had suffered from a rather severe attack of measles. The child was seven years old, and was convalescing nicely. The doctor had not seen the patient in four days, as it was not deemed necessary. The day the present trouble began, the boy was feeling unusually well until about three

o'clock in the afternoon, when the mother noticed his face began to twitch on the left side. From this he developed a light convulsion, which involved the whole body. As soon as the convulsion was over he became limp, and the mother thought he was dying. Dr. Schoch was telephoned for, and also a nurse from a nearby hospital. I was called later. Dr. Schoch and the nurse went in first, but in less than ten minutes I was there. The child lay there almost lifeless,—unconscious, pulseless, cyanotic, cornea reflex gone, urine and feces passed involuntarily, with that short shallow respirations with mucus in the throat, so well known to the laity as the "death rattles." With a stethoscope the heart could be heard to beat twice distinctly, and then there was a flutter that would last as long as four beats. Dr. Schoch told the family the boy was dying, and could not possibly live longer than fifteen minutes. I asked him if he would let me try an experiment by placing the boy in the prone position. He said I could try anything, for, so far as anything he knew to do, the boy would die. Without further delay we opened the windows and turned the boy in the prone position. Almost instantly the color showed improvement. In two or three minutes the pulse was perceptible at the wrist, but very irregular at first. We gave eight minims of camphorated oil hypodermically, and applied heat. As soon as the heart showed a little more improvement and life seemed to be returning, the child began convulsions again, which lasted for over two hours. Dr. Schoch remained with the patient, and he thinks he had twenty to thirty convulsions. I saw the boy two days afterwards, when he looked normal in color. Recovery was uneventful.

During these observations I have had several surgical cases that I am sure were benefited by keeping them off their backs. One case was very instructive. This was a woman forty-eight years old. She had a large fibroid that had been causing trouble for six to eight years. Examination showed she had a severe myocarditis, which is very common with a fibroid. Climbing one flight of stairs would make her very short of breath. Complicating this she had an occasional attack of bronchial asthma. The case was one that had to be operated on, but it was a poor risk. The heart stood the operation well, but about six hours after the operation, she became short of breath, and the pulse became fast and weak. She showed a little cyanosis. We then turned her in the extreme left lateral position with instant re-

lief. After two hours she was turned in the extreme right lateral position. Recovery was uneventful.

I give it as my opinion that cases of pneumonia that are beginning to show signs of exhaustion, such as shortness of breath and cyanosis, are benefited by being placed on the stomach. This is especially true of children with bronchopneumonia. In this position the cyanosis is much less marked during the paroxysms of coughing, and the patient sleeps much better, because the breathing is easier.

All of this convinces me that patients under conditions such as I have named above, breathe poorly when they lie on their backs. This is especially true in babies because of their helplessness. It is also true of some patients that are unconscious from any cause. This has led me to believe that we keep our patients lying on their backs too much; especially is this true after operations. My plan now is to let patients lie in any position in which they are most comfortable. Patients coming out from under an anesthetic are given pillows enough to make them comfortable.

In a recent communication Dr. Cushing said he fears but two things in operating on the brain: one is hemorrhage, and the other is that the patient may stop breathing. If they do stop breathing he turns them on the stomach. He cites one patient that stopped breathing during the operation on the brain. He had to place him on the stomach before he would breathe again, and he had him there for twenty-four hours. This also helps to prove my theory that the asphyxia in these cases is due to a paralysis of the respiratory center in the brain, just as Dr. De Lee says asphyxia of the new-born is due to a torpid inactive respiratory brain center.

#### CONCLUSION

Patients showing shortness of breath or cyanosis should be placed in the prone position. Putting a patient in the prone position is the best method of resuscitating him from the effect of too much anesthetic. As soon as the patient is turned to the prone position he will breathe.

#### DISCUSSION

DR. R. N. ANDREWS (Mankato): This has been an exceedingly interesting paper to me, and it occurred to me to ask why such a marvelous change could take place in so short a time. I would like to have that answered by the reader of the paper, if possible.

DR. E. G. STERNER (St. Paul): I wish to thank and to compliment Dr. Ghent on his excellent paper inas-



much as he has brought out something that is absolutely new. The condition of cyanosis as we see it in babies, is, of course, nothing new, but the doctor's method of treatment, I think, is an innovation. I have spoken to several older obstetricians, and they tell me they have observed this most fatal condition very frequently.

I am sure that the second patient Dr. Ghent referred to, and whom I took care of, would have died had it not been placed on its stomach. It was practically in a moribund condition. I wish to give Dr. Ghent credit for saving that baby's life, because had he not spoken to me, a month or two prior to this, about this method, I should not have thought of it myself, and I think it is the only treatment that will save the infant where the cyanosis is very severe.

I hope Dr. Ghent, in reading this paper here, will bring out a further discussion, so that we may know the experience of some of the other men in regard to this particular condition.

DR. O. W. HOLCOMB (St. Paul): I rise to substantiate what Dr. Ghent has said. I am quite certain that in the case I had, if it had not been for the prone position we put the baby in immediately, it would have died. I was called to the place very hurriedly, and when I saw the baby it was in a dying condition. The skin was cyanosed, cold, and clammy; the pulse was very rapid; and respiration was extremely so. As soon as I put the child on its stomach there seemed to be a change for the better. The treatment was continued, and the baby eventually recovered.

As far as the position is concerned, it is a new thing, that is, for the treatment of pathologic states. It is not new to mothers to put their babies on their stomachs. Instinctively this appears to be done whenever baby cries for any cause.

DR. L. A. NIPPERT (Minneapolis): This paper is certainly very interesting. High temperature in new-born babies is nothing new, and the description Dr. Ghent gave reminds me very much of the description we read about of acute thymus disease in children. I know, and probably Dr. Rothrock knows, of a fellow practitioner in St. Paul whose baby was two or three weeks old when he was suddenly called home as the baby had a high temperature, was beginning to breathe with great difficulty, was badly cyanosed, and, in spite of everything that was done, the baby died within a short time. I want to make the point that, it may be, some of these children had an acute congestion from thymus disease, and by changing the position of the child, with pressure upon the blood-vessels of the heart and lung, in that way the child was resuscitated.

DR. E. P. LYON (Minneapolis): I had the pleasure of reading the paper of Dr. Ghent some two weeks ago, and also had a talk with him over a year ago about the subject, particularly as to its physiologic aspects. As a matter of instinct, rather than of reason, I cannot agree with Dr. Ghent as to his explanation, which is, that the difficulty with the patients described was fundamentally respiratory. On the other hand, inasmuch as I had nothing but my physiological instinct to fall back upon, I was not inclined to speak at all, because I think that one man can speculate as well as another. You will

understand, then, that what I shall say is not based upon any experiments.

As a result of the original conversation between Dr. Ghent and myself a year ago, Dr. Hirschfelder and one or two of our advanced students made blood-pressure determinations in adults in various positions, including the prone position, and they did not seem to get differences. I was looking for such differences, and I wish we had carried on these experiments in babies, because I am inclined to think we would find something there; and my inclination or physiologic instinct would be to regard the abdominal reservoir of blood as the responsible agent for the conditions described by Dr. Ghent. I think he had mechanically a somewhat similar condition to that which we find in a tame rabbit. If we hold a tame rabbit head up, body down, he dies, because the blood settles in the abdominal region. The abdominal wall is not sufficiently tense to prevent the blood from settling there. In that case the accumulation of blood in the abdominal veins is due to gravity, which would not be true in Dr. Ghent's cases. Nevertheless, in a pumping system like the heart and its attached system of tubes, the liquid must primarily fill the vessels. If the vessels are too big for the quantity of blood, or, what is the same thing, if the quantity of blood for the size of the vessels is too small, the blood will settle in the locality of least pressure, which must be the large veins, and not go back to the pump; and, therefore, the circulation fails. Crile, you remember, at one time ascribed shock in a measure to this, and used bandages to bring the supply back to the heart and make it circulate in the absolutely essential parts, such as the respiratory center.

I cannot believe the condition described by Dr. Ghent is essentially the same as apnea of the fetus, which is commonly ascribed to the low degree of irritability of the respiratory center. It seems to me that Dr. Ghent's experience in itself negatives this explanation, because, you will remember, he used artificial respiration and even inflation of the lungs in one of the babies without improving its condition. On the other hand, turning the baby on its belly relieved its condition. Perhaps pressure or a bandage on the abdomen would have done the same, or might have helped.

This, then, would be my theoretical assumption: As pressure by the weight of the baby in the prone position was brought upon the abdomen, more blood was brought back to the heart, and the arterial pressure was raised, the respiratory center was improved, and the condition of the heart was quite likely also improved. It sounds logical to me that the explanation should be developed under these conditions, the primary considerations being circulatory rather than respiratory. But, as I have said, my remarks are not founded on experiments, as they should be to become of real value.

DR. GHENT (closing): One of the speakers asked why there should be so marvelous a change in so short a time. I am not able to answer that. The change for improvement is very sudden. In five or ten minutes you can see a marked improvement. The explanation for this sudden improvement brought about by a change of position must be worked out by the physiologist, and not by the clinician. Some physiologist will have to explain this phenomenon.



## SOME OBSERVATIONS IN THE DIAGNOSIS OF SYPHILIS\*

BY GILBERT J. THOMAS, M. D.

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The discovery of the spirochete as the causative organism in lues, the Wassermann reaction, and salvarsan have given to the medical profession definite diagnostic aids and a "near" specific in syphilis.

Physicians who thoroughly examine their patients and who take advantage of laboratory tests see more cases of syphilis in various stages than have been heretofore observed. This is not because of a greater prevalence of the infection, but because of the greater aid afforded by the isolation of spirochetes, and because by means of the serologic tests we are now much better able to diagnose lues.

*The Wassermann Test.*—Much has been written about the unreliability of the Wassermann test. In our experience in the Mayo Clinic there is less than 1 per cent of error in the positive findings; and treatment has corroborated these findings. There have been a few false positives in cases of cancer, tuberculosis, scarlet fever, and Hodgkin's disease. Between 25 and 30 per cent of the patients who complained of lues have given a negative Wassermann. These cases were mostly tertiary and so-called parasyphilics. A provocative dose of salvarsan or neosalvarsan, or the use of mercurial inunction for the same purpose, has been a very great aid in the Wassermann technic. Many cases shown to be negative return strongly positive after the administration of antispecific drugs in provocative dosage. This is especially true of tertiary lues.

The Wassermann test is valuable also in that it indicates the drug best suited to the patient under consideration. In some instances I have found neosalvarsan effective when salvarsan would not reduce the strength of the reaction; and in some cases that mercury in large doses would reduce the Wassermann reaction after salvarsan had failed. After the institution of treatment the negative Wassermann test should never be used as an indicator of sterilization, but as a sign that the particular drug employed is destroying the spirochete, either directly or by the formation of antibodies.

In a number of cases of secondary lues I have noted that the spinal Wassermann is positive, indicating that early invasion of the central ner-

vous system may occur and not show symptoms for a number of years. For this reason the spinal Wassermann should always be used in secondary cases; and the spinal test should be made frequently during the course of treatment. In the tertiary syphilitics and in the so-called parasyphilitic cases, or in suspected cases without history and without definite findings, the spinal Wassermann should be a routine procedure. In a number of suspicious but atypical cases a positive spinal reaction was the only confirmatory finding. This has been especially true in a number of old syphilitics with no clinical evidence of lesion in the central nervous system.

*Diagnosis.*—In the diagnosis and treatment of lues it should be remembered that this is more than a skin and venereal affection: it is a constitutional disease which may attack any organ or tissue. We do not find as many surface manifestations of the disease as in the past; and, when found, they are not prominent. Comparatively few primary and secondary luetics are seen in the Mayo Clinic. A great many visceral and central nervous lesions and a great many parasyphilics are seen. The diagnosis of the primary lesion is positive in every case of untreated chancre. The finding of the spirochete is not difficult, and may be accomplished by any physician who has a microscope and some india ink.

The fact that about 20 per cent of the primary lesions of lues are extra-genital should seriously concern us as physicians. A large number of physicians and surgeons have their fingers and hands infected; and we see many primary sores about the mouth, eyes, nose, and throat. Any slow-healing lesion, genital or extra-genital, whether or not it shows induration, should be considered luetic, and serum should be examined for the spirochete; if found negative, the patient should be watched for the approach of secondary invasion. A great number of patients come to our clinic every year for chronic nose, throat, and mouth conditions which prove to be lues. Many undiagnosed conditions of the eye are found to be luetic when examined by a specialist and checked up with a Wassermann test. In our experience a complete physical examination, including combination with the Röntgen ray and the Wassermann, show a correlation of findings which

\*Read before the Goodhue County Medical Society, Red Wing, Minn., May 4, 1915.

makes the diagnosis comparatively easy. A carefully taken history, with consideration of the patient's ancestors and immediate family, will sometimes reveal a basis for the suspicion of a luetic taint. Most patients are truthful when giving their history to the physician, and state only the things which, in their judgment, are important. In my experience a history of infection long forgotten is frequently elicited when the patient is informed of the suspicion, and allowed time to review his past complaints. For example: a patient came recently with a fair history of gall-bladder trouble of long standing, but the attacks were atypical and the man's appearance suggested some constitutional disease. He gave a negative history of infection, and was considered a surgical case. The examining physician noted that there had been no children and no pregnancies in his family, and advised a Wassermann test, which was strongly positive. When the patient was presented with the result of the serologic test he denied infection; and the test was repeated and again found positive. The ways in which the disease might be contracted were explained to the patient; and he was advised to think over his previous illnesses, and report the following day, which he did to the effect that while working in a dissecting-room (he had studied medicine for two years) he had cut his finger. A sore developed which did not heal for some months. This story may or may not have been true, but, without cross-examining and by informing the patient that the serologic test might be in error, the history of probable infection was obtained.

The preponderance of tertiary, nervous, and parasyphilitic cases over the number of primary and secondary infections does not speak well for the permanence of the treatment which has been instituted within the last ten years. I believe that many of these patients have been insufficiently treated even since the discovery of salvarsan. In a few years after being pronounced cured, they develop incurable lesions of the blood-vessels, viscera, or nerves. In many instances the usual course of the luetic infection is interfered with by the removal of the primary growth and the institution of inadequate treatment for too short a period. This explains why so many luetics of this type escape diagnosis until their entire history is taken and complete examination made. The examinations in the nose, throat, and eye departments frequently enable us to make diagnosis in cases with obscure histories and clinical findings. In a number of patients complain-

ing of urinary difficulty, a thorough cystoscopic examination revealing a typical cord-lesion of the bladder has given the first hint of the cause of the trouble. In a number of ways the Röntgen ray has led us to suspect lues, especially by showing shadows in the chest due to tumors, glands in the mediastinum, and enlargements of the heart and greater vessels. The Röntgen ray has helped in the diagnosis of the condition of bones and joints. The röntgenogram has also cleared up a number of obscure gastric conditions by showing contractures and other signs indicating the possibility of lues.

In making routine Wassermann tests I have been impressed with the great number of positive reactions on all patients showing heart-lesions and those with clinical findings of heart or blood-vessel pathology. One observer has stated that there are few luetics who do not show, during the first five years of infection, blood-vessel changes beyond their years. Also, he states that congenital luetics very frequently show marked blood-vessel changes before the tenth year of life. In our experience most of the heart-lesions which are not preceded by a definite history of rheumatic or tonsillar infection have been due to lues, and all cases should be looked upon with suspicion. The Röntgen ray is indispensable in making a diagnosis of enlargements of the vessels and the heart. Several of our cases of mediastinal tumors revealed by the röntgenogram have proved luetic, both serologically and by treatment. The examination of the luetic should always include a good röntgenogram of the chest showing the heart and the large vessels. In this way the diagnosis has been cleared up in a great many patients who complained of pain, especially at night, located between the shoulder-blades and thought to be due to gall-bladder trouble. Another group of patients, with luetic histories, complaining of high abdominal pain consequent to luetic enlargement of the heart or aorta, have been observed in our clinic.

A surprisingly large number of gastric conditions have been proved luetic in origin. The Röntgen ray and screen examination have contributed largely to the diagnosis of these cases.

Syphilis of the liver has been a somewhat frequent finding, especially in those cases showing enlargement of the left lobe. In a high percentage of cases the spleen is found enlarged. There has been no typical history or findings in these cases except the frequent enlargement of the left lobe of the liver. Every patient with enlarge-



ment of the liver should have a Wassermann test; and, if the diagnosis cannot be otherwise explained, a provocative drug should be given and the Wassermann test repeated. If surgery is not urgent, or if the case is medical, antispecific treatment should be tried.

In a number of cases proctoscopic examinations for rectal complaints have disclosed typical contractures, which have been the only findings suggestive of syphilis. The introduction of the proctoscope should always be practiced in patients complaining of rectal trouble. In a few cases the diagnosis of syphilis has been suggested by the laxity of the rectal sphincter found on digital examination.

*Treatment.*—It has been the opinion in our Clinic that salvarsan properly administered for a sufficiently long period will probably cure lues. After recovering from their symptoms, patients frequently stop treatment; therefore the necessity of the continuation of some kind of treatment for at least three years should be impressed upon them. In some instances patients remain under observation only long enough to receive several injections of salvarsan. To supplement this they must take treatment, either salvarsan or mercury, for at least three years, when they may be encouraged to expect cure, though they should not be assured of it as a certainty. I agree with Ormsby in his statement that it will be fifteen years before we can have proof of the permanence of cures effected by our present methods of treatment. Physicians treating patients with salvarsan or other specific drugs should keep a very careful record of the drugs used, total amounts given, methods of administration, intervals between treatments, and the length of time the patient is under observation. In this way only can an outline for uniform treatment be formulated which will indicate the best drug or combination of drugs to use in the different stages of lues, and will afford a complete record of a large number of cases so that the permanence of our cures can be correctly estimated.

Intravenously, I employ either salvarsan or neosalvarsan. The new drug can be given in larger quantity and more frequently than salvarsan. It is easy to prepare, and should be the one chosen. The first requisite in intravenous medication is *pure* water. This can be obtained only by distillation and thorough sterilization. The water should be used the same day it is distilled; but, if it has not been opened, re-sterilization is sufficient for its use on the follow-

ing day. If, after this preparation, one cannot be sure of the water, a control injection should be given of water alone in the same amount that would be required for the salvarsan solution. This insures any reaction following salvarsan medication to be due to the salvarsan and not to the water. A large amount of apparatus is not necessary for intravenous medication, even when using salvarsan. A 25-c.c. syringe, one and one-half inches of rubber tubing of small caliber, and a needle of moderate caliber are all that is necessary.

The preparation of the drugs is important, and should be carefully carried out. A complete solution should be made of either salvarsan or neosalvarsan before it is used. All the precautions found on the wrapper of every ampulla should be carefully read at least once before a patient is treated. If these precautions are taken, complications can be averted, and salvarsan becomes practically a harmless drug.

Of special importance are the solubility and the alkalization of salvarsan. The drug should be put into very hot water, and enough sodium hydrate should be added to get a clear amber solution. After this has taken place several drops of sodium hydrate should be added to make doubly sure the solution is distinctly alkaline. I have never seen any bad results from over-alkalization; on the other hand, deaths have been reported from using the acid solution. The operator should be extremely careful that the drug is well dissolved in the hot water before introducing the sodium hydrate. When using a syringe and concentrated solutions the addition of salt solution is not necessary. I have seen less reaction when using salvarsan in a concentrated solution in water only when thoroughly alkaline than when using the old method of dissolving the mixture to 300 c.c. with salt solution. As I have stated, salvarsan in from .2 to .4 gm. doses in concentrated solutions is now being used in our Clinic. If this mixture is injected very slowly and is thoroughly in solution, there is no more reaction than in using the diluted method. It is not necessary to incise the arm nor to dissect the vein. With a little care and practice a needle can be introduced directly into the vein. If a needle of fair size is used, clotting is not frequent. A free flow of blood indicates to the operator that the needle is within the lumen of the vein, and injection may begin. The patient should be supine with the arm extended at right



angles to the body and lying loosely on a small board, which can be attached to the table.

In a few primary cases I have observed, salvarsan has been given in small doses twice a week for three or four doses, and then in larger doses until eight to ten injections have been given. The reaction of the patient, and the character of the urine, should be the guide to increased dosage and to frequency of administration. The sore can be treated locally by thorough cautery, surgical removal, or by the application of antispasmodic drugs. I have found an emulsion of salvarsan one of the best dressings that can be applied to chancre. The patient is advised to return from four to six weeks after the disappearance of his chancre, at which time a Wassermann is taken before and after provocative medication. He is also advised to return for examination and for serologic tests every three months the first year, and every six months for the following two years. During one of his subsequent visits a spinal puncture and Wassermann on the spinal fluid should be made.

In secondary cases the dosage should be smaller and cautiously administered, since the reactions from dead organisms are frequently observed and have been known to cause the death of the patient. Mucous patches may be treated with salvarsan emulsion in connection with the intravenous medication. These cases are treated twice a week as long as they have a reaction, and then every other day until the Wassermann is negative. If they are symptomless at this time, mercury medication is advised after a rest of one or two weeks. The mercury is to be taken by inunction or by intramuscular injection in large quantities for six weeks. The patient is then advised to rest again for a short period. In this group of cases the Wassermann should be frequently taken, not as an indicator of sterilization, but to show the progress made in the treatment of the patient. We found in some cases that the Wassermann remained positive despite salvarsan medication, but that neosalvarsan or mercury quickly changed the reaction.

Eye complications or lesions of luetic origin have not been found a contra-indication to arsenic therapy. Where the destruction was not complete, a great many eye conditions have improved. In our earlier work the eyes were routinely examined before the first dose of salvarsan was given; at the present time complications in the ears are more especially investigated.

In treating many cases of aneurysm and val-

vular disease of the heart a very marked improvement symptomatically and a slow but steady decrease in the size of the Röntgen shadow have been noted. Many valvular lesions without pathology in the large arteries have been permanently and completely relieved by salvarsan. I had one very interesting case of complete heart-block, which was permanently relieved after three intravenous injections of neosalvarsan. No difficulty has been experienced in treating the largest aneurysm when small doses and concentrated solutions were used, thus not affecting the blood-pressure. It is our practice in these cases to precede the arsenic therapy by large doses of mercury. The mercurial treatment tends to reduce the amount of reaction occurring in most cases after the first and second injections. Enlarged glands within the mediastinum respond quickly to treatment.

Syphilitic infection of the stomach is a frequent finding, and it seems to be a very favorable condition for treatment. I have collected between twenty and thirty cases which by the history, Röntgen ray, serologic findings and treatment have been proved to be gastric lues. Such patients are quickly relieved of their symptoms. Their gain in weight and constitutional improvement are very marked. The Röntgen ray is a great aid in making the diagnosis and in ascertaining the degree of improvement after treatment. A few patients in this group failed to improve under treatment; they showed ulcer at operation. This brings out a point that should always be remembered,—that syphilitic patients may have lesions not dependent on the syphilitic invasion and that tissues or organs thus affected may give rise to symptoms recognized as independent of the luetic infection.

Gumma of the liver and spleen is not as quickly relieved as luetic tumor located elsewhere in the body. By persisting with treatment I have seen a very large gumma of the liver gradually reduced in size. A case of this kind requires persistent and continuous treatment, either arsenic or mercury-iodid in large doses. Bone and joint conditions show early improvement, but cures are very slow and this type of case seems to respond more quickly to combined mercury and arsenic treatment than to either given alone. I have not had a great deal of experience with the intradural method of treatment in lues of the nervous system. I have, however, made several intradural injections, using arsenized serum and minute dosage of neosalvarsan in solu-

tion, but the results from this mode of treatment do not seem to be more permanent or more marked than when the treatment is carried on intravenously. Such cases should have repeated small injections two to four times per week. Very marked improvement in the symptoms and especially in the general condition of these unfortunate individuals has been noted. In a few cases there has been a reversal of the spinal Wassermann after intravenous medication or the combined arsenic-mercury treatment. All of these patients should first have intravenous treatment, and intraspinal treatment if the first is not sufficient to relieve symptoms. Our aim is: (1) To improve the general tone of the patient; (2) to arrest the progress of the disease; (3) to improve the symptoms complained of; (4) to bring about a general symptomatic and serologic improvement; and (5) to cure.

#### CONCLUSIONS

The discovery of the spirochete, the Wassermann reaction, and salvarsan afford efficient means for the diagnosis and proper treatment of syphilis. The permanence of our cures cannot

be estimated until a sufficient time has elapsed for the assembling of complete and thorough record—showing the drug employed, amount used, method and manner of administration, serologic and symptomatic improvement, and cure. Syphilographers in particular, and the medical profession in general, should advise their patients to see their physicians frequently regardless of whether or not they have symptoms of recurrence, in order that thorough serologic and clinical examinations may be made. The diagnosis of blood-vessel, visceral, and nervous lues is frequently missed because complete physical examination is not made and because the correct interpretation of serologic and other tests becomes more difficult as the disease progresses. The complete examination of the special sense organs, and the use of the Röntgen ray, should always be employed, as these findings are indispensable. Every luetic patient should be thoroughly treated; the longer the history, the more prolonged the treatment should be. Some degree of improvements is noticed in every thoroughly treated luetic patient.

## CROSS EYES. HOW SHALL WE CARE FOR THEM?\*

By LORENZO N. GROSVENOR, M. D.

HURON, SOUTH DAKOTA

My only excuse for my subject is, that the child so afflicted may have, in the words of the celebrated "Teddy," a "square deal."

My good father spent most of his life teaching the young mother how to take care of her baby: bathing, dressing, feeding, etc.; but when a mother brought in her baby and asked him to look him over to see if he was all right, he would strip him, and examine him thoroughly and say, "My, what a magnificent bouncer! Nothing the matter with him." "But, doctor," the mother exclaims, "don't you think the baby is getting cross-eyed?" "Oh, possibly, but the baby will outgrow that," replied the doctor.

My father was in general practice for more than forty years, and, like so many doctors of his time and, sad to relate, of the present as well, not knowing the harm and not knowing how to correct, he just naturally "shunted" the proposition, just as tonsils and adenoids are "shunted" by so many of the family doctors of today.

To return to the child. The mother notices that when her one-year old baby gets tired, one of his eyes "turns in" or "turns out." During the following months she notices this more and more frequently, and soon the eye is constantly crossed, and she worries about it. "Well," Uncle Doc said, "never mind, that will straighten out as the child grows older." Will it? No, never, unless we exhaust every possible means to correct it. Faith cure will not straighten out these cases.

Now, doctor, here is a baby girl brought into your office for some other trouble, and the mother is anxious about her. You, the dearly beloved family doctor, examine the child carefully, prescribe, and give directions. The baby girl's eyes are crossed. Did you notice it, enough, to give any directions or even suggest to the mother as to what ought to be done about it? No; I don't believe you did. Did you, doctor, do your full duty to that little baby girl? Are you willing to bear the responsibility of that girl growing up with one eye crossed and almost blind because

\*Read at the 34th annual meeting of the South Dakota State Medical Association at Sioux Falls, May 18-20, 1915.

you did not insist that the parents give it right care?

"Cheese and crackers," doctor! Give that child a "square deal." Would you let your own baby girl grow up with crossed eyes? No; you would exhaust every possible means to have it corrected. Send the mother, with her cross-eyed baby, to the best oculist you know, and tell her to obey the oculist's orders.

Think what a handicap the crossed eye will be to that child as it grows up in grammar school, high school, and college, and all through life. How she will wish, when grown up, that her parents had had her eyes straightened out early, when there was a chance. Doctor, don't let her grow up with such a handicap. Give the oculist a chance, early, to straighten those eyes when it is possible to do so.

The old idea that it was merely a muscular error, and that a simple operation would correct it, has passed on. The celebrated French ophthalmologist, Donders, almost fifty years ago, put forth a most reasonable theory of cause of strabismus. Normal eyes when looking at a distant object are "at rest," and do not have to focus or accommodate; but when such eyes look at an object near by, 12 to 14 inches, they not only have to accommodate but also converge enough to bring the visual axes to intersect at the near point. Then, there are eyes that are hyperopic and astigmatic, that have to focus to see distinctly at a distance; and when such eyes look at a near object, they have to work overtime, requiring not only the nerve and muscle tension of normal eyes, but an extra large amount of power to focus and converge on the near-by object; hence one of the eyes deviates too much, and you have your case of squint.

Worth, an English ophthalmologist, early in this century, advanced a step farther, and showed that the chief cause of squint was in a defect of the "fusion faculty," the faculty which enables us to blend mentally the images received on the retinae of the two eyes. This power begins to develop early in life, there being evidence of

vision with the two eyes, or binocular vision, by the sixth month, and reaching its full development by the sixth year. Hence, in early childhood, anything which disturbs this balance of the motor co-ordinations will cause squint. Such disturbances in the order of their importance are as follows: (1) hypermetropia and astigmatism; (2) unequal refraction of the two eyes; (3) amblyopia; (4) the infectious fevers of childhood; (5) convulsions or special fright; (6) hereditary influences.

Treatment for "squint" should be started just as early as recognized. Worth says "a child with good vision in each eye who develops a constant monolateral squint at the age of six or eight months, will, in the absence of proper treatment, become blind in the squinting eye; the loss of vision in the deviating eye is so rapid that the power of central fixation is often lost within eight or ten weeks." Hence, get the oculist busy right early in these cases.

Wendell Reber, of Philadelphia, in 1904, said that "improvement may be expected in the amblyopic eyes in 50 to 60 per cent of cases by properly adjusted glasses and exercises." "If taken before the fifth year there seems to be no reason why strabismus should not be cured by non-operative measures in 70 per cent of cases."

When the oculist gets a chance at these cases early, it is up to him to make a most thorough study and examination of the eyes at several sittings, to correct all refractive errors under complete relaxation of the muscles of accommodation, to occlude the fixing or good eye, thus forcing the use of the deviating eye, to train the fusion faculty by amblyscope, prism exercises, bar reading, etc. These measures of correction take much time and infinite patience on part of both the oculist and the patient. After all other methods have been exhausted and without result, the oculist is justified in operating.

To the family doctor: Take an advanced stand in your community, and save these little ones from a one-eyed life.



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## STATE HEALTH PROBLEMS IN NORTH DAKOTA

The *Bismarck Palladium*, the official county newspaper, has a very good editorial in its issue of March 16th, on the slaughter of the innocents. Dr. Smyth, the county health officer of Burleigh County, delivered an address at a public meeting held in Bismarck during Baby Week, in which he reviewed the conditions in North Dakota. The state health officer, in the official bulletin for June, 1911, commented upon the large number of deaths among children, and termed it the "terrible slaughter of the innocents."

In comparing the statistics with the registration area of the United States, North Dakota shows 30.7% of all deaths to be among children under one year of age, while in the United States the percentage is 19.1% of all deaths. Then, too, for five years the percentage of deaths in North Dakota has been very much in excess of that elsewhere.

Dr. Smyth refers to the fact that these conditions were reported to the state officials, the Governor, and the legislature, and from what was said by Dr. Smyth, it seems as though the Governor took but little interest in the matter, and, in fact, did very much as other governors

do—put the burden on someone else. They pass it up to the state legislature, and the result is the same as in Minnesota, the legislature looks upon the death of horses, cattle, and hogs as much more important than deaths among human beings. In North Dakota, apparently, some of the governors have used their influence against health legislation. The same conditions arise in North Dakota as arose in Minnesota at the last meeting of the legislature. An effort was made by the Minnesota legislature to make the executive officer of the State Board of Health a governor's appointment, thus bringing the State Board of Health into the political game without much prospect of considering public health from a humanitarian point of view.

Dr. Smyth said that on the recent trip which Governor Hanna took with the Ford Peace Commission the Governor had seen some horrible sights in Berlin and other points in Europe, but he was unable to see out of his official window in Bismarck the hospital where even more horrible deaths were going on, due to the unwillingness of the legislature and the governor to see that sufficient appropriations were made for state health work and that differential points were made between the value of the life of a calf or pig and baby.

It is rather singular how impregnable is the hide of the average state politician in regard to public health work, and yet it is not strange that this is so. These so-called politicians are not trained in the fundamentals of health and its relation to society and state. They know less than the average high school child, who is taught in most schools hygiene and sanitation, and they certainly care less until the thing is brought to their own doors, then, like other ignorant and frightened people, they shout loudly for assistance, they demand attention, and they demand the suppression of disease, at the same time resisting laws which are promulgated for the protection of the people.

Of course, North Dakota has always been short sighted in its appropriations. Last year, for instance, the legislature appropriated \$4,600 for the State Board of Health for two years, and \$27,025 for the Live Stock Sanitary Board for the same period. This shows the relative value between hogs and men in North Dakota.

Minnesota hopes to accomplish something more next year with the legislature, but we need the prayers of the entire population in order to overcome the economically bad habit that has grown

up among politicians. Public health and public protection need money. It is a safe and sound investment and promises an insurance that is immeasurably beneficial, but can we make politicians see it?

### WAR AND PESTILENCE

This last winter has seen the culmination of what worry and disease can bring about in America. Notwithstanding the fact that many men disclaim any personal interest in the great war which is now in progress, it cannot be denied that its influence is felt at all times. The man who claims that he reads only the headlines in the newspapers is really trying to deceive himself. If he does read only the headlines he reads them with the same avidity that his fellow man reads the text underneath. It is not uncommon for a man to say that with his other troubles he has "this war on his hands," as if it were a personal matter, and that he were more or less responsible for its outcome. Nothing can be more to the mark than that all true patriots consider the possibility of war not only abroad but at home, and the result is that intense feeling has arisen which bears its fruit in increased nervous tension, sustained interest, and more or less nervous exhaustion. No matter where a man's sympathies may lie, his active interests are identical with his opponents.

It is now recognized that Americans as individuals have become more and more neutral, that is, there are less acrimony and debate and violent opinions held as to the right and wrong of those in conflict; principally for the reason that everyone is in doubt as to the real outcome of the war. So far no nation has a deciding voice, and although the horrors and suffering have been so tremendous in Europe, we at a distance, cannot begin to appreciate the real state of affairs. We may get an accurate, or we may get an exaggerated view of both suffering and of race feeling, but if we feel, as we do, that the war is the greatest calamity that has ever happened in the life of this world, and that its greatest happenings are in Europe, we feel the reaction of it in America to a very great degree, and if we could by any reasonable or rational means help end the conflict we would certainly do so. So great has the interest of Americans been that they have contributed enormous sums of money to all the countries, not only for the comfort of the Allies, but for their opponents. Former residents or descendants from each of the European

countries have contributed sums that they could spare for the benefit of sufferers in the country with which they are in sympathy, and the day will come when Europe will look upon American contributors in a much more friendly spirit. Just now there is much feeling between all of the countries and America. The contestants and their allies feel that America should take one side or the other, but so far our watchful administration has kept us out of the turmoil.

If we could appreciate the ravages, the deprivations, the exhaustion, the injuries and disease with which the old country is afflicted, we should not be surprised that there is here in this country an amount of mental suffering that is at least proportionate to the actual suffering abroad. The time has gone by for an effort to locate blame on either side, and the principal object now is to win at any hazard. We who live so far away from the center of things sympathize with all of the nations and races at war because we have heard so much, have read so much, whether reliable or unreliable, that our sympathies have broadened and become more general in their tone.

Another element which enters into this discussion is the epidemic which has been so prevalent over the United States, namely influenza or la grippe. It is well known among medical men that there has been more suffering and more prolonged agony and discomfort from the epidemic this year than ever before, and the question arises as to whether it is all influenzal, or whether it is not associated with the high nervous tension which we are all laboring under. If that be true, it is not to be wondered at that the grippe symptoms have continued and have lasted weeks or months when they should have exhausted themselves in a few days. The Irishman expressed the situation very aptly when he told his fellow worker that the grippe was a disease that lasted six months after you got well.

Rather remarkable forms of grippe have appeared, involving the entire mucous tract, not only in the nasal pharynx, the favored location with its complicated middle ear diseases, abscesses, and more or less permanent defects, but also the mucous membrane of the lower larynx and upper pulmonary tracts. Relatively speaking, the number of cases of pneumonia is small compared with the cases of grippe in the throat and bronchial tubes. Not infrequently, too, has the gastro-intestinal tract been involved, manifesting symptoms by several attacks of pain,

high temperature, and other evidences of bacteriological infection.

Aside from these two greater causes has been the unusual winter, persistent cold, and the enormous snowfall with hard, blasting winds.

These three conditions have caused a great many diseases of different types, some of them more or less allied, but all of them have been unusually persistent and wracking, but with all this, we who live in America should not complain, for when we think of our friends in Europe, of the people who have gone through such strains as occur in actual warfare with its privation, taxation, ruinous and destructive conditions, we really ought to feel at peace with ourselves. The fact remains that the war, pestilence, and atmospheric conditions have left their marks upon the United States of America.

#### A MEDICAL CANDIDATE FOR LIEUTENANT GOVERNOR

Dr. J. A. Gates, of Kenyon, Minnesota, is a candidate for Lieutenant Governor, and it is the earnest wish of the Medical Association of Minnesota that he be elected, and if doctors are to accomplish anything in politics this next year they will do well to advance the candidacy of Dr. Gates regardless of party lines.

Dr. Gates has been a member of the legislature for a long time and he has been of the greatest benefit to the medical men of Minnesota. He is a hard worker, a very earnest physician, and he has a very keen viewpoint. A doctor in the Lieutenant Governor's chair would have a decided amount of influence on legislative matters. Dr. Gates has helped the state of Minnesota in many ways; he has been of assistance to the State Board of Health and to the State Board of Examiners, in this way keeping out of the state unscrupulous practitioners. He has by his work and voice explained the tricks and foibles of bills that looked reasonable and safe, bills which originated from quack institutions or were promulgated by quacks or inefficient legislators, and no one can estimate the amount of money he has saved the state of Minnesota, and for which reason alone he ought to be elected to the office which is next to the highest in the state.

Dr. Gates is 46 years old and in the prime of life. He graduated from the University of Minnesota in 1895, and has been practicing medicine ever since. This is an additional reason why the Alumni of the University Medical Department should enthusiastically support him in his candi-

dacy. He has been a member, too, of the Goodhue County Medical Society for years, and has several times represented his district in the House of Delegates of the Minnesota State Medical Association.

Now is the time for the doctors to get out and work for a fellow doctor, and a man who has an enviable reputation, who is a good worker, and a man who will accomplish something in a high office.

## CORRESPONDENCE

### TO THE EDITOR:

The following reprint from *Public Health Reports*, illustrates the danger of emergency fire-connections with polluted water supplies, a condition which we are constantly advising against. It is valuable as a record to use as an illustration if any cases of this kind should be called to your attention.

#### A WATER-BORNE DYSENTERY EPIDEMIC

On October 24, 1914, an outbreak of dysentery among the employees of the St. Paul Union Stock Yards Co. at South St. Paul, Minn., was reported by the Live Stock Exchange Co. to the Minnesota State Board of Health. Investigation showed that about eighty of these employees developed symptoms of dysentery between October 21 and 24, the majority of them on the night of October 21. It also brought out the fact that all these persons were using water from the distribution system of the St. Paul Union Stock Yards Co. The regular water supply of this company was pumped from three drilled wells located at the yards, but on certain days of each week, when shipments of live stock were heavy, the supply was augmented by water obtained through a connection with the mains of the building of the Swift & Co. packing plant, known as the distillery building. The water supplied to this building was also pumped from a drilled well. For fire protection there exists a system of mains supplied with water pumped from the Mississippi River through an intake main. This fire-protection system was connected with both the Union Stock Yards distribution system and the distillery building system. The water was separated in these several systems by means of gate valves.

When water from the distillery building supply was forced into the Union Stock Yards Company's system, part of it went through a section of the fire-protection system of Swift & Company. This water necessarily carried with it any water remaining in the pipes from the last time they carried river water.

It was discovered during the investigation that Swift & Co. had furnished water to the Union Stock Yards system on October 19 and 20, at which time Mississippi River water doubtless had entered the Union Stock Yards system as described above.

During this investigation analytical control was maintained on the water supplies involved. Contamination was found present in the distribution system of the



Union Stock Yards Co., but was not found in the water in the various drilled wells connected with the supply. These results corroborate the information just given concerning the source of the pollution of the supply. The distribution system of the Union Stock Yards Co. was disinfected with calcium hypochlorite and the contamination removed.

As soon as the above facts had been ascertained and it was definitely known that the contamination in the system of the Union Stock Yards Co. was due to the connections with the river water fire system of Swift & Co., the two companies involved were notified and advised that the connections between the two systems must be broken. The companies concurred in this opinion and immediately carried out this recommendation. Sections of pipe were removed at certain points, which eliminated any further possibility of contamination from polluted Mississippi River water.

Inasmuch as it was feared that typhoid infection might have been carried in the polluted river water, all persons having used this supply for drinking purposes were urged to be inoculated with typhoid vaccine, which was furnished to the physicians of these companies free of charge by the State Board of Health.

The usual executive procedure followed by the Minnesota State Board of Health in handling epidemic work was carried out in this case. The executive officer, upon receiving notice of the outbreak, immediately directed the Division of Preventable Diseases to investigate and determine the cause. Immediately following the epidemiologist's report, the executive officer ordered the Division of Sanitation to make a detailed study of the water systems and apply such measures as seemed necessary to remove the contamination and correct the apparent defects in the supplies involved.

H. A. WHITTAKER,  
Director.

Minneapolis, February 29, 1916.

## MISCELLANY

### MEMORIAL RESOLUTIONS PASSED BY THE HENNEPIN COUNTY MEDICAL SOCIETY MARCH 6, 1916

#### CHARLES WINTHROP WILLIAMS

Dr. Chas. W. Williams was born April 10, 1863, at Ridgway, Wisconsin. He was educated in the schools of Dodgeville and Spring Green, Wisconsin, and at the Northwestern Medical School in 1891. He was a member of Stewart Memorial Presbyterian Church, of the Ark Lodge of Masons, Minneapolis Mounted Commandery, and the Athletic Club. He practiced here twenty-five years.

WHEREAS, it has pleased Almighty God to remove from among us Dr. Williams, a member of our Society for many years; and

WHEREAS, we, recognizing his professional attainments and high moral character, desire to extend to you our sympathy in your bereavement, therefore be it

*Resolved*, by the members of the Committee on Necrology of Hennepin County Medical Society in meeting assembled, that we express the sympathy of the

Society in these resolutions, a copy of which is to be mailed to Mrs. Williams and a copy spread on the records of the Society.

#### ALANSON GEORGE ALDRICH

Dr. Alanson G. Aldrich was born at Adams, Mass. He was the grandson of David Aldrich, a famous Quaker preacher. He was graduated from the College of Physicians and Surgeons in Baltimore, in 1879, and after practicing his profession in Massachusetts for three years, was married to Flora L. Southard, and in 1882 came to Anoka, Minnesota. Dr. Aldrich was a 32d degree Mason and a Shriner and a prominent Democrat.

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W. H. AURAND, M. D.,  
JNO. HYNES, M. D.,  
LEO CRAFTS, M. D.,  
Committee.

## REPORTS OF SOCIETIES

### HENNEPIN COUNTY MEDICAL SOCIETY

The regular meeting of the Society was held March 6.

President Cross was in the chair and seventy were present.

The report of the committee in regard to the relief fund was given by Dr. Abbott as follows:

#### *Resolved*:

1. That a fund be established for the relief of those who are, may be, or have been members in good standing of the Hennepin County Medical Society, and who are at present or may in the future be in need of the actual necessities of life; provided, that no member who has become such by transfer shall be eligible for relief until he has been a member for three years.

2. That such part of said fund as is necessary may be used for immediate relief.

3. That the balance shall be invested in interest bearing securities.

4. That this fund shall be under the control of the Trustees of the Hennepin County Medical Society.

5. That no single beneficiary shall be given more than \$10 per week.

6. That this fund shall be raised by voluntary subscriptions among the members of the Hennepin County Medical Society.

7. That these subscriptions shall be for a period of

three years and shall be paid in full or in three annual instalments.

8. That the obligation assumed by any subscriber shall cease in the event of death or incapacity.

9. That a Committee of thirty-five be appointed by the President of the Hennepin County Medical Society to solicit subscriptions for this fund.

The report was adopted.

Members of new committees were announced as follows:

Committee on President's Address: Dr. Abbott, Dr. Farr, Dr. Kimball, Dr. Little and Dr. Litzenberg.

Committee on Arrangements for Entertainment of State Society: Dr. Benjamin, Dr. Weston, and Dr. W. A. Jones.

Red Cross Committee: Dr. Condit, Dr. Lapiere, Dr. C. B. Wright, Dr. Gustav Schwyzer, and Dr. Julius Johnson.

The report of the Committee on Necrology appears elsewhere in this issue.

The program of the evening was as follows: "Brain Tumors; Symptoms and Diagnosis," by Dr. W. A. Jones; "Eye Symptoms in Brain Tumor," by Dr. Eugene S. Strout; "Surgical Aspect of Brain Tumors," by Dr. H. B. Sweetser; "Pathology of Brain Tumors," by Dr. A. C. Potter.

The following took part in the discussion: Dr. R. E. Farr, Dr. Herbert Jones, Dr. A. W. Abbott, Dr. F. S. Bissell, and Dr. A. S. Hamilton.

S. R. MAXEINER, M. D.,  
Secretary.

### THE MINNESOTA ACADEMY OF MEDICINE

The regular meeting of the Society was held at the Town and Country Club Wednesday, March 8.

Dr. A. F. Wilcox reported three cases, one a diverticulum of the esophagus, another of duodenal ulcer, and another of prolapse of the rectum.

Dr. Arnold Schwyzer related an experience he recently had with a peculiar case of chronic appendicitis.

Dr. Lerche showed the Society an instrument of his own devising that would enable a surgeon to puncture and drain the pleural cavity without causing the lung to collapse. Drawings that showed the instrument in use were also displayed.

Dr. Head presented the history of a case that suggested miliary tuberculosis of the lungs.

Mr. G., age 40; single; occupation, farmer and carpenter; Scandinavian. Family history, negative for tuberculosis but patient states that he had two brothers who were insane.

Patient was a well man up until eight years ago when he was operated on for suppurative appendicitis. He had rheumatism in the joints last spring, since which time he has never been well. He denies venereal disease.

Since the attack of rheumatism patient has felt worn out, has tired easily, and become very short of breath on slight exertion. Two months ago he began to have a bad cough which speedily became worse. He coughed up some sputum but noticed no blood in his sputum. This cough continued throughout the fall, and about two weeks ago he became so weak that he went to bed. At this time he was running a fever, he does not know how much. In the past few months he has lost about twenty pounds in weight, appetite has been very poor, and he is nauseated by food.

Patient was a tall man with long chest and abdomen, high cheek bones. Pupils reacted to light; knee jerks present. Color of skin of face very blue. Marked cyanosis of finger tips and lips. Suppressed dry cough. Temperature 102°; pulse fast. Had evidently lost considerable weight. Looked very sick. Mentality clear. Careful physical examination negative except for the chest findings.

Examination of the lungs showed impairment to percussion throughout both sides, both fronts and backs. This impairment was most marked in the left base posteriorly where the note became dull. Posteriorly in the lower left chest an area of distinct tubular breathing could be made out in the mid-scapula line about on the level of the angle of the scapula. Over the major portion of the left lung many fine crackling rales were present both in front and behind. Also over the whole of the right lung many crackling rales were heard. These rales were especially sharp and snappy in quality and seemed close to the ear. They were very diffuse and could be heard in all parts of the chest except in the extreme left apex.

The heart was negative. Abdomen was negative. Spleen was not palpable. There were no rose spots present. Patient's tongue was clean.

Leucocyte count 9,500; P. M. N. 85%; L. Lymph. 2.5%. Sm. Lymph. 10.5%; Trans. 1.5%; Basophiles O. O.; no nucleated reds present.

The history, fever, prostration, extreme cyanosis, and physical signs in the chest suggested miliary tuberculosis of the lungs.

The patient remained in the hospital under observation for a period of twelve days during which time he ran a continuous temperature ranging from 100° to 103.8°. Repeated examinations of the sputum failed to reveal tubercle bacilli until five days prior to death when one specimen showed a very few. The Widal reaction was negative.

Patient failed rapidly, dying in coma on the twelfth day after admission.

Under the head of "An Experimental Study of the Effects of Inanition Upon Growth," Dr. Jackson detailed some of his recent findings in a series of experiments made on rats. A number

of charts were exhibited that showed in figures the results of his work; also a couple of rats that were still undergoing certain nutritive processes. They were of the same age, yet one was only one-third the size of the other. Very little discussion followed, but many questions were asked concerning the technic of the experiments.

Dr. Theodor Bratrud, of Warren, Minnesota, concluded the program with a presentation of his thesis on Sliding Hernia.

Thirty-eight members and two visitors were in attendance.

FRED E. LEAVITT, M. D.,  
Secretary.

### STEARNS-BENTON COUNTY MEDICAL SOCIETY

The regular meeting was held at St. Cloud, March 16. Twelve members were present. Dr. Arthur T. Mann, of Minneapolis, was the speaker of the evening. A thorough discussion followed his presentation of cases.

T. C. BOEHM, M. D., Secretary.

## NEWS ITEMS

Dr. James McPeck is leaving Breckenridge to locate in Forest Lake.

Dr. James A. Macdonald, of Grand Forks, has moved to Cando, N. D.

Dr. G. M. Sewall, of Cuyuna, is spending several weeks at Rochester.

Dr. W. C. Portmann has returned to Jackson after an absence of four months.

Dr. C. F. Ewing, of Wheaton, is spending part of the winter in Florida, because of poor health.

Preliminary steps have been taken for the establishment of a city and county hospital in St. Peter.

Dr. W. G. Brown has returned to Fargo from a two months' trip, most of which was spent in visiting important clinics.

Dr. H. G. Wood, for several years a resident of Rochester, has left for France to enter one of the hospitals in the war zone.

Several Washington, D. C., druggists have been found guilty of selling adulterated and misbranded Tincture of Iodine.

Dr. E. F. T. Richards, of St. Paul, has returned home after spending six months with the Harvard Red Cross contingent in France.

The osteopath appointed as City Physician of Bemidji is ineligible to hold the office, as a general

knowledge of medicine is one of the requirements of this office.

Dr. L. L. Culp, of the Red Lake Indian Agency, has been made special physician for the United States Indian service at large.

A case brought by the heirs of the late Mrs. M. A. Miller to break her will has been dismissed, and by the original terms a fund of \$1,500,000 has been set aside for a free hospital for the poor to be built in St. Paul.

Dr. A. C. Tanner, formerly of McGregor, is leaving the Lying-in-Hospital in New York City, where he has spent several months, to fill a four months' appointment as Assistant House Obstetrician in the Sloane Hospital for Women.

Interest in the sessions of the Kotana Medical Society, a Society recently formed by physicians of western North Dakota and eastern Montana, has grown to such an extent that monthly instead of bi-monthly meetings will be held in the future.

A corporation known as the Black Hills Tuberculosis Sanatorium has been formed to build an institution at Pringle, S. D., to care for the many patients who are unable to enter the State Sanatorium because of its crowded condition. Dr. J. L. Stuart, of Spearfish, S. D., is to act as Superintendent.

### POSITION WANTED

An experienced young lady desires position in a physician's or dentist's office. Can furnish good references. Address 307, care of this office.

### LOCATION DESIRED

By a physician in Minneapolis or St. Paul. Prefer assistantship with an established physician. Will take postgraduate work first. Address 326, care of this office.

### PHYSICIAN WANTED

In a town located in a Scandinavian district of North Dakota. The last doctor here made over \$2,000 in less than ten months. Very little competition. Address 321, care of this office.

### PRACTICE FOR SALE

In rich farming district of central Minnesota. Town of 300. Collections A-1. To the man who will buy my office equipment for \$150. Am retiring because of poor health. Address 323, care of this office.

### LOCUM TENENCY WANTED

Or salaried assistantship by a young man thirty years of age, having had five years' experience in hospital and general practice. Licensed in Minnesota, but will go anywhere. Address 317, care of this office.

### OFFICE FOR RENT

After March 31st my office at Chicago Ave. and Lake St. will be for rent, as I am taking a downtown office. This is an excellent location for some one wanting an outside office. Robert Williams, M. D.



## PRACTICE WANTED

I want to buy a practice in town of over 1,000, where there is a hospital or good opening for one. Want a practice suitable for two in partnership. Write with all details to Dr. L. A. Davis, Dalton, Minn.

## LOCATION OFFERED

A fine opening for a doctor, particularly if Norwegian, in a beautiful Minnesota city of about 3,000, free to the purchaser of my modern home on a large corner lot in the center of the city. Good schools and churches. Address 316, care of this office.

## X-RAY MACHINE FOR SALE

Static x-ray machine; Nelson model T-H. Sixteen plate. Needs few new plates, otherwise in working order; with hand power, two tubes, tubestand, electrodes, platform, etc. Price \$40, cost \$400. Address Box 117, Grey Eagle, Minn.

## PRACTICE FOR SALE

An unopposed practice in live town on railroad in Southwestern Minnesota. Established seven years. Twenty-five hundred to \$3,000 per annum; collections 100 per cent. Money from the start. Small investment. Address 318, care of this office.

## ASSISTANT WANTED

Assistant wanted in country and hospital practice. Must have no bad habits, be ambitious, and on the job all the time. Good experience guaranteed. Salary \$1,500 to start, with chance for advancement. Minnesota. Address 319, care of this office.

## PRACTICE FOR SALE

Eastern South Dakota. Practically unopposed practice in town of 600; one small town tributary; located on two railroads; easy terms; paying business from the start; mixed population; must be seen to be appreciated. Address 328, care of this office.

## PRACTICE FOR SALE

A southern Minnesota \$3,800 practice in town of 500. Established 21 years. Rich country; high school; electric lights; good fees. Will sell for invoice of office furniture, instruments, and driving outfit. Must sell immediately. Address 322, care of this office.

## HOMESTEAD FOR SALE

160 acres: Homestead, Minnesota. No residence or improvements required. Good land. Near market. Just the thing for a doctor to get in his homestead right before too late. \$500 includes locating fee, delinquent taxes and Government price. American Investment Co., Box 303, Fargo, N. D.

## LOCATION WANTED

Competent general surgeon and laboratory man wishes to buy a surgical practice or associate himself with an internist in a town of not less than 15,000 nor over 50,000. Neither liquor nor tobacco user. Leaving present field because same is too limited. Married man and can come at once. No real estate. Address 332, care of this office.

## ASSISTANT WANTED

A young unmarried licensed physician to serve me at First Aid Hospital of Minn. Steel Co., Morgan Park, Duluth, Minn. Salary, \$100. Chance for private practice also. Address W. H. Magie, M. D., 401 Sellwood Bldg., Duluth, Minn.

## PRACTICE FOR SALE

Southeastern South Dakota. Unopposed practice in a live town with large territory; well established; \$3,500 yearly; appointments; collections excellent. Office building, furniture and instruments, \$600 to \$800, depending on how many of the instruments are wanted. Only a small amount of cash necessary; liberal terms. Act quickly. Address 334, care of this office.

## PHYSICIAN WANTED

To take my practice for the period of one year while I am away taking a postgraduate course. Office equipment furnished, but physician must pay all of his own expenses and collect his own accounts. Must come about April 1. Practice about \$4,500. No competition at present. Town 500. Must sign usual Locum Tenens agreement as to future practice. Address 324, care of this office.

## PRACTICE FOR SALE

One of the best country practices in Minnesota for sale cheap. Located in a town of 400 population, thirty miles from Minneapolis, on the Great Northern railway; thickly settled farming community of mixed population. No competition, large territory, ten miles all directions. Work from the start. Residence and office optional. Price for office fixtures and drugs, \$400. Best reasons for selling. Address 320, care of this office.

## PRACTICE FOR SALE

Unopposed practice and small drug store stock. Purchase of building optional. Practice of \$2,000 per year goes with the drug stock, which invoices about \$600. Large territory, settling up fast and in the best part of north-central Minnesota. Good roads, beautiful lakes and the best of hunting and fishing. Excellent place for young physician. Money from start. Practice should nearly double in 3 years. Address 331, care of this office.

## LOCATION FOR SANITARIUM FOR SALE

Excellent location in Ortonville, Minn., near Bigstone Lake (32 miles long), a fine 10-room house, summer resort town. Sailing, boating, fine fishing; lake Government stocked. Fine large spring and finest spring water, containing large amount of iron. Town is located on main line of Milwaukee on branch line. House completely modern. Bathing beach, 100 foot frontage on lake, Sandy shore. Price \$10,000. Might consider part trade. American Investment Co., Box 303, Fargo, N. D.

## DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

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## PUBLISHER'S DEPARTMENT

### DIARSENOL

The Canadian preparation, Diarsenol, is being largely used in this locality in place of Salvarsen. Thus far we have heard of no adverse criticism, and physicians find it very satisfactory. The trade is being supplied by I. C. Bryant, 2609 Hennepin Avenue, Minneapolis.

### AUTOMATIC CHEMICAL CLOSET CO., INC.

Owing to the large increase in their business, this company has been obliged to secure new quarters for their Minneapolis offices and are now located at 1417 Washington Avenue North, where they have about five times the floor space and many more conveniences as regard light and ventilation.

The company would be pleased to have the medical men visit their offices whenever they are in the city and examine the closets which this company is manufacturing.

### THE CHICAGO LABORATORY

Dr. Ralph W. Webster, head of the Chicago Laboratory, 25 East Washington St., has recently written three very important booklets that he would like to place without charge in the hands of every Northwestern physician. The booklets are "The Newer Aspects of Blood Examination," "The Complement Fixation Test," and "Abderhalden's Serodiagnosis." We trust the readers of the JOURNAL-LANCET will at once take advantage of Dr. Webster's offer and send for one or more of the booklets.

### THE HYGEIA HOSPITAL, CHICAGO

Those of our readers who have followed the work of The Hygeia Sanitarium in Chicago, will be interested to know that although it has ceased its corporate existence, the ownership has been acquired by Dr. Wm. C. McLaughlin, its former superintendent, and the business is being carried on under the name of "The Hygeia Hospital." It was under Dr. McLaughlin's management that the institution was able to produce the splendid results for which it is well known, in the correction of drug addiction and alcoholism; and as he devotes his entire time to this work, each patient is assured the individual benefit of his mature knowledge and experience.

### WM. PAINTER CO. RETIRE FROM BUSINESS

This company, who have been engaged in the sale of surgical goods in Minneapolis for many years, have sold their business to the Standard Medical Supply Company, who have just started the largest surgical and hospital supply house in the Northwest at 1006 West Lake street. They are to continue the downtown store at 621 Marquette avenue for the present, and will be pleased to have all medical men make it their headquarters when visiting the Twin Cities.

### CORPUS LUTEUM

Why should the doctor specify? Why shouldn't he specify when he is convinced of the reliability of a certain make of a product that has given good results experimentally in his hands? Naturally, he wants his

patients to get the make of goods that he knows may be depended upon.

When experimental work is done with Armour's and results are gratifying, he specifies Armour's goods because he knows the Armour goods.

In the January 29 N. Y. M. J., Dr. Sajous, in a splendid article on Corpus Luteum, says that a prerequisite of success is the use of Corpus Luteum made from glands taken from pregnant animals.

Corpus Luteum (Armour) is made from true substance. The glands are gathered while perfectly fresh, and the products are guaranteed to be as per label.

### THE AMERICAN MEDICAL MEETING

The announcement of the "Official Route" for the coming meeting of the American Medical Association that is to be held in Detroit during the week of June 12, is made in the advertising columns of this issue and it will certainly be good news to the profession of the Northwest that the route selected will be over the Chicago, Milwaukee & St. Paul Railway, which road has taken such good care of the medical men who have attended the annual meetings in past years. It is none too early for planning for this meeting. Detailed information will be given in circular letters and in the columns of future issues of the JOURNAL-LANCET.

### A NEW NON-SKID TIRE PROTECTOR

A new steel-studded leather tire cover, called the Woodworth Overshoe for Automobile Tires, has recently been put out by the Leather Tire Goods Company, of Niagara Falls, Ont. This cover is made of chrome leather, water-proofed by a special process which is guaranteed to prevent it from absorbing water so as to become stretchy or hard and brittle. The cover is held on clincher tires by small hooks which engage the clincher rim. On straight side tires, a thin head fits between the head of the tire and rim. The leather on the inside is finished in such a way that it adheres to the rubber of the tire, preventing all friction and wear.

The covers are practically puncture-proof and are an excellent anti-skid device for use on wet and muddy roads. They have the advantage of being always on the tires so that one does not have to bother with chains in slippery weather and cannot come unprepared on slippery spots. Woodworth Overshoes not only protect the tires from outside injury and road wear but they reinforce the tires to a considerable extent, thus preventing blow-outs. They are especially handy for fall and winter running since they protect the tires on the bad roads and prevent the danger of having to repair punctures and blow-outs in bad weather. They also do away with the need of tire chains, except possibly for ice and snow.

For roads that are rough, rutty, rocky, or otherwise hard on tires the Overshoes are doubly valuable.

Many people consider Woodworth Overshoes especially valuable for use on spare tires. They protect the tires from the action of light and air and they can be used over old tires that are worn comparatively thin on the middle, and for slippery weather they can be applied to the rear wheels, thus preventing the danger of skidding accidents.

People interested in Woodworth Overshoes should write to the factory for circular describing them, and for the special introductory offer that will be made to people mentioning this journal.

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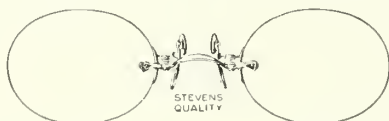
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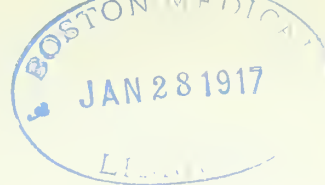
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and Official Organ of the  
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No. 8

## THE MOUTH AS A FACTOR IN THE PATHOGENESIS OF HEART, KIDNEY, AND JOINT INFLAMMATIONS\*

BY THOMAS B. HARTZELL, D. M. D., M. D.

MINNEAPOLIS

Some years ago while compiling my records on root-tip amputation for the cure of dental abscesses, my attention was attracted by the fact that a considerable number of persons, on whom I had operated for abscesses in the jaws, reported improvement or recovery from mild joint-inflammations. Such improved condition was often coincident with marked improvement in the physical resistance of the individual. Not infrequently this improvement in strength of the individual was accompanied by improvement in the joint conditions sufficiently marked to call forth inquiry on the part of the patient as to whether the cure of the infection in the jaws might be responsible for the recovery from joint-inflammation.

At the time my article on root-tip amputation for the radical cure of dental abscess was published, in 1908, I had then operated on three hundred and fifty cases. The operation was a faulty one, in that I seldom curetted out the abscess sack as thoroughly as I now know it should have been done. The wounds were permitted to heal by granulation; and the drainage was always meager, but was maintained by a plug of cotton saturated with sandarac varnish and iodine. Nevertheless, in spite of the rather faulty operation and poor technic, the majority of these cases did make a good, though slow, recovery. The coincidence between the cure of these abscess conditions and improvement in

joint-inflammations, together with the increased physical resistance of some of these patients, led me to make a fairly systematic inquiry in succeeding cases regarding possible rheumatic disturbance in this type of case; and, from that time on, I have kept fairly systematic records regarding these points. At that time I had not thought particularly of any definite relationship between the dental abscess and pericardial, myocardial, or endocardial inflammations. During the same years, I was much engaged in the treatment of pyorrheal conditions about the teeth, and I finally developed an operative technic which led to marked improvement in the cases of individuals suffering from inflammation of the periodontal tissues. I particularly remember a case some years ago in which my patient was at the time suffering from what was believed to be an acute kidney inflammation, and I was warned by my patient's physician to handle this particular patient with much care, because of the fact that the individual's resistance was down, and there were much albumin and many casts in the urine. The operative procedure in the mouth went forward slowly, and the mouth-infection was eventually stamped out. The physical resistance of this patient gradually increased, which led to a comment from the physician that there had been a marked reduction in albumin and that the kidney condition had undergone a marked change for the better.

\*Read at the 34th annual meeting of the North Dakota State Medical Association at Bismarck, N. D., May 12 and 13, 1915.



This experience led me to keep more careful records of my cases, and stimulated me to persevere in the extra labor of taking more accurate records of patients who reported for treatment of either para-apical infection or pyorrhea. My record cards were then made to include an examination of the mouth as to local infections, and examination of the urine for albumin, sugar, and casts. Later, where the general condition of the patient seemed to suggest it as worth while, blood-pressure records were added and heart conditions were ascertained, and, if there were great heart weakness or evidence of endocarditis, the practice of asking for consultations with physicians and thorough physical examination of patients has been



Fig. 1. Showing bacteria in mass on the teeth of a child. These teeth without disclosing stain are white.

followed. I have been particularly fortunate in that, through force of circumstance and natural bent, I enjoyed the opportunity of graduating in both medicine and dentistry; therefore, when I met with the clinical observations before noted, they appealed to me as well worth study. During the succeeding years my case-cards have shown an increasing number of recoveries from heart, kidney, and joint conditions which could not be accounted for on any other ground than the elimination of the local foci of infection. Perhaps the most interesting small group of cases I have had the good fortune to study, was incorporated in a paper read before the New York Academy of Medicine, February 5, 1914, and published in the *New York Medical Journal*, May 23, 1914. As a direct result of the reporting of such observations, the Scientific Foundation and the Research Commission of the National Dental Association requested me to un-

dertake a systematic research to establish with accuracy the question of the relationship growing out of these mouth-infections to the conditions suggested by the clinical histories of the type I have mentioned. To that end the Commission made its first appropriation of eighteen hundred dollars in 1913, which was tendered to me for this use. The School of Medicine made possible a hospital service which has afforded an opportunity for the study of bed-ridden cases, my work largely hitherto having been confined to ambulatory cases, being individuals who were not so severely ill but that they could come to the office for treatment.



Fig. 2. Normal human gum, showing bottom of a crevice poorly protected by epithelium.

The opportunity to carefully study the bed-ridden case and the opportunity to have the co-operation of members of the medical staff of the University Medical School, who were equally interested in the solution of the problems suggested, have been most valuable. I chose the problem of the dental abscess,—the confined or blind dental abscess,—as a possible source of metastatic infection, it presenting a less diverse character of bacterial growth than the pyorrheal pocket, and I hoped that we might obtain material in a sufficiently pure state to eliminate the necessity of many replantings of the material for purification, which, we believe, may lead to attenuation of the virility of the cultures under observation. We undertook, therefore, the dental abscess first, allowing the problem of pyorrheal infection to rest for a later study.

It is the product of the work engaged in during the winter of 1913-14, particularly, to which I wish to invite your attention. In order to lay a premise for a discussion of that work, however, I wish to discuss dental-path infections from the dentist's point of view, and illustrate by word picture and lantern slide what I believe to be the method of planting ordinary dental infections. It seems to me from my contact with medicine that a correct understanding of such knowledge as we now possess regarding the dental infection, is oftentimes little appreciated or understood by the average physician. There is a good reason for this in that up until within late years dentistry

in 1913, that the next great step in preventive medicine must be made by the dentist. The pointed criticisms made by Dr. Hunter, of London, regarding the conservation of teeth by unhygienic methods stirred up a world of resentment in the dental profession, which in the end has resulted in great good, because the dental profession is slowly becoming convinced that it has a great work to do, and also that it has been guilty in the past of sins of both omission and commission, for which in the future it will be held strictly responsible.

The bacteriology of the mouth as worked out

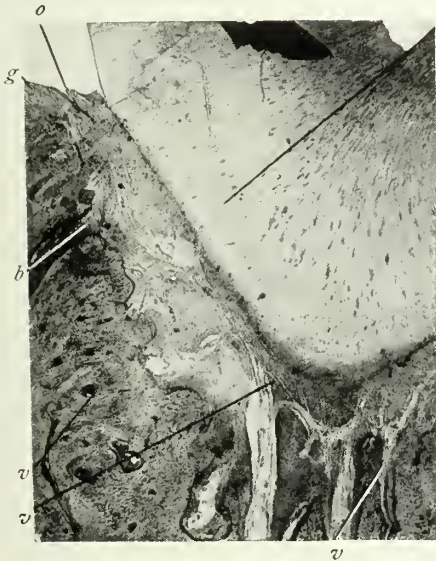


Fig. 3. Showing venae extending almost to the gingival crevice and leading into the periodontal membrane. g, Gum edge; o, opening into vessels of periodontal membrane; d, dentine; b, bone; v, network of vessels.

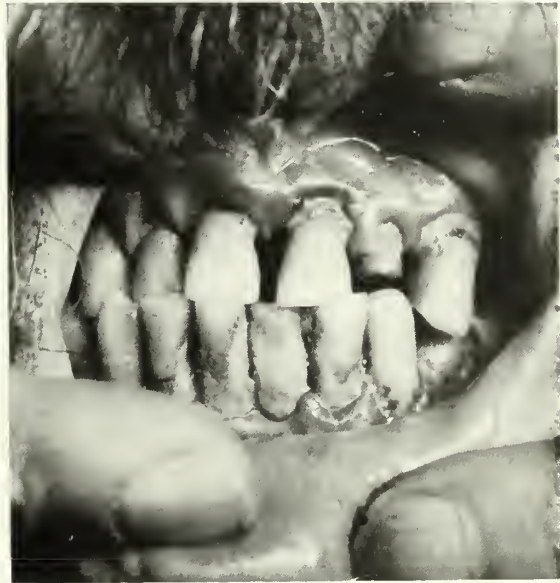


Fig. 4. Showing calculus on the tooth's neck and pus flowing from well-marked pyorrhoea pockets in the mouth of a man who now has a multiple arthritis.

was supposed to be sufficient unto itself, and the dentist's work was accounted a thing apart from medicine; and physicians, feeling that dentists were competent to care for the mouth, have therefore frequently left mouth-conditions out of their consideration. Trusting to the usual statement from the patient that the dentist pronounced his teeth to be in good condition, no further heed to the mouth is generally given by the physician. It is not surprising, therefore, that this lack of team-work has permitted this field to lie so long untilled. The more or less desultory work done in this direction by men in different parts of the world has, however, gradually borne fruit, and drawn from the medical profession, through some of its prominent men, such statements as that made by Dr. Charles H. Mayo in Chicago

by Miller, of Berlin, was the first great work done in this direction, and it really has been an inspiration to most of the later work. Miller showed that the bacteriology of the mouth was an exceedingly difficult thing to master, and that almost every known organism, sooner or later, at some period of life might become an inhabitant of the oral cavity. The work of Goadby, of London, Black and Talbot, of Chicago, Grieves, of Baltimore, Rhein and Nodine, of New York, and many others might be mentioned as of pioneers in the development of the relationships springing out of mouth-infections; and, while the subject of mouth-infections is often spoken of by bacteriologists as one of extreme difficulty, there are a few foundational facts regarding inoculation into the tissues or blood-stream of the indi-



vidual of the possible mouth-growths, which are comparatively simple. The physical condition which governs the advent into the tissues from mouth-infections originating in the dental path can best be illustrated by a study of a few pictures made to bring graphically into view the habitual bacterial content of tooth-surfaces, together with the possible paths of entrance into the tissues. (Note picture of bacterial coat on teeth as revealed by the use of the disclosing stain. Pictures of pyorrhea pockets were illustrated by slides from Henrici.)

The tooth's surface and the gum margin fold may contain in the bacterial plaque, illustrated by

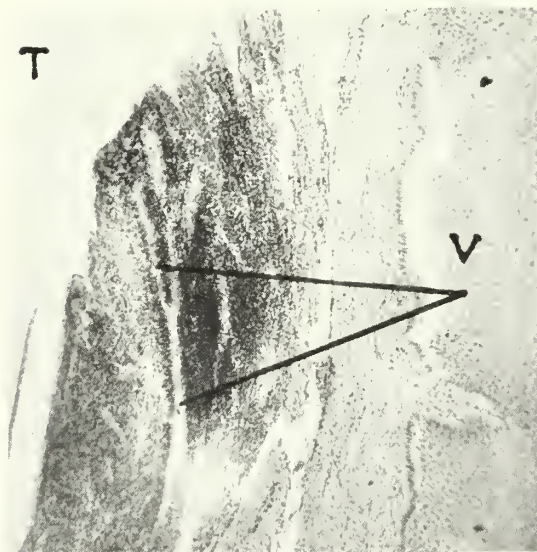


Fig. 5. Showing human pyorrhoea pocket. Note the great mass of plasma cells on the ulcerating surface of the pocket. T, tooth; v, vessel, less than  $\frac{1}{16}$  inch in diameter.

the first picture shown, anything from streptococci to actinomycosis; and, while the ray fungus is comparatively rare, I have recently found a perfect example of it under the gum-margin crevice in the ulcerating surface of a pyorrhea pocket. A study of Henrici's sections indicates clearly that the bacterial mass illustrated on the stained tooth's surface may easily penetrate the gum-margin, crevice, and the ulcerating surface of this crevice, as shown in Fig. 5, illustrates how easily whatever grows on the tooth's surface finds access to the circulation, as it gradually works down under the gum-margin fold into the ulcerating surfaces here illustrated. Once an inflammation is incited in this locality, the endothelium of the vessel ends undergoes cloudy swelling, and the venous capillaries are blocked to the return flow, so that endarteritis,

with consequent edema, is the primary pathological lesion. The blocking of return flow through the endarterial inflammation leads to an outpour of material which results in the deposition of lime salts on the tooth's root surface, well illustrated by this picture showing calculus on the root surface. (Fig. 6.) The calcific material poured out on the root surface becomes a sharp, mechanical irritant, and also fosters bacterial growth. The tooth's attachment to the bone in its socket is a true joint, and favors infection more, if possible, than do other joints of the body, as it has no capsule and a generous blood supply. The movement of the tooth in its joint or socket, technically known as a *gomphosis* joint, is not relatively so great as is the movement of



Fig. 6. Calculus on root surface. How futile to expect medicine of any kind to benefit a tooth with deposits of this character.

those joints with articular surfaces. That movement, nevertheless, is constant during mastication; and the vast amount of force borne by the teeth during mastication expends a great amount of weight on these joint attachments, which further favors the inflammation through the moving of the tooth, coated with this irritating calculus, up and down in its ulcerated socket. Thus, when an inflammation is once set up, it becomes a continuous process, which is brought to a close only by the removal of calculus and the pitted rough root surface or the tooth itself. (See Figs. 6, 7, and 9.) No drugs of any kind can ever supplant properly directed surgery in the cure of this condition; and my own experience in this direction covers now some two thousand cases. While drugs may be helpful, they never can in the nature of the case be more than adjuvants. One would no more expect to gain healing of a condition of this



kind by the use of drugs than one would expect to have healing of a deep wound which contained a splinter of wood or a piece of dead bone; and, until such surgical interference has been afforded, either through proper curettement of the root surface or extraction, no permanent cure may be expected, and, during the period of the life of a tooth so affected, its lesion affords a constant door to the steady ingress of the bacteria growing on the tooth's surface, which may be as much as six hundred million to the milligram of tooth scrapings of which 44 per cent are streptococci<sup>1</sup>.

The conservative operation for the cure of pyorrhea deserves a moment's consideration.

First, it involves curettement of the root's surface sufficient to remove the calculus and pitted

the leucocytes may overtake and phagocyte the bacteria. Thus the massage strengthens the tissues, and really affords a kind of autovaccination with whatever may be in the gum margin. The depth to which one might profitably curette the root surface for the elimination of infection is well illustrated by the next picture, which shows an area of dirty root surface untouched, a second area of root surface correctly cleansed, and a third area of root surface which has been curetted so deeply as to open up the lacunæ in the cementum, thus making permanent hosts for streptococci, which are sure to gain access to the badly treated root surface and which may unquestionably result in continued pyorrhea. The pyorrhea pocket is unquestionably the most important door through which streptococci and



Fig. 7. Area of root surface showing its pitted character, the white areas being the stump holes of fibre ends. The dark areas show the more dense walls of the pits.

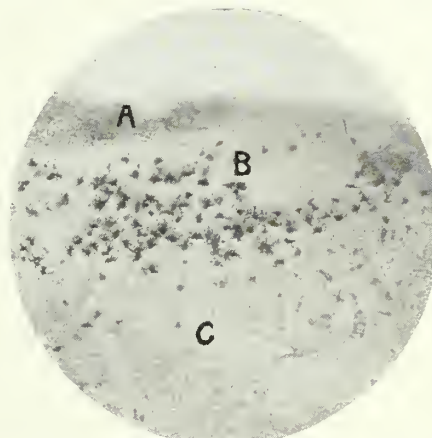


Fig. 8. Showing small section of tooth root surface. A, uncleansed; c, surface correctly curetted; b, surface curetted too deeply, opening cementoblasts to infection.

coat left by the destruction of the pericemental fiber to just a sufficient depth to leave the surface brilliant and glossy, but not deep enough to uncover the lacunæ of the cementum of the root itself. (See Fig. 8.)

Second, it involves the light curettement of the alveolar process to stimulate an outpour of new bone from the process edge.

After a sufficient period of time has elapsed for an outpour of callus to have taken place, there must be continuous effort on the part of the patient to maintain the tooth surfaces moderately free from bacterial plaques, and he must massage the gum tissue surrounding the teeth for the double purpose of causing the gum to shrink tightly about the teeth, closing the door to whatever may be growing on the tooth's surface itself, and to drive the bacteria and edematous fluid in the gums into the general blood-stream, where

other organisms may gain entrance to the circulation from the pyorrhea pocket to the tissues about the root end, both in circulatory movement of the fluids in the peridental tissues and the act of mastication, which moves the tooth up and down in its joint, further favoring the ingress of bacteria into this field.

The second great channel in the tooth path for infection is that of the dental-pulp canal, which, through decay and exposure of the pulp, may be opened to infection. The following series of pictures showing the dental-pulp canal accurately illustrates how readily infection may reach the tissue in the bottom of the socket, particularly where the teeth are broken off and the pulp chamber is exposed to the entrance of food through the act of mastication. The degree of sepsis which may obtain in a tooth so open to infection, is well illustrated by the picture

introduced here from Black's "Operative Dentistry" and by Fig. 25, showing the multiplication of bacteria in the texture of the tooth itself, and teaching us plainly that the conservation of teeth of this kind depends particularly on the destruction of the bacterial content of the tooth's substance, which is accomplished by treating the root canal with fifty per cent sulphuric acid followed by sodium dioxide. The importance of excluding saliva from pulp canals during treatment, either for the surgical removal of pulps or the purification of pulp canals once infected, is well illustrated by a study of heart-degeneration, resultant from the inoculation of rabbits, by ordinary salivary strep-

inches, and this ulcerated surface is cunningly protected from view by the overlapping gum surface. It is a comparatively common experience to find the gum surface detached to an average depth of a quarter of an inch. In such a case, therefore, we have a total ulcerating surface of seven and a half square inches. Compare this amount of ulcerating surface with the possible amount of absorbing surface in an ordinary tonsil, which is the next most important path for the introduction of mouth-infections. The tonsil has from eight to sixteen crypts, and these crypts are almost microscopic in size, so that, at best, it presents a small door compared

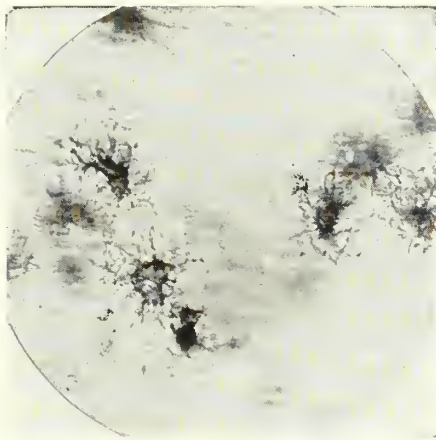


Fig. 9. Showing size of lacunae in cementum, from center of field in Fig. 8. Lacunae could hold thousands of micro-organisms if opened by incorrect curetment.

tococci, by Henrici. You will note in this picture (Fig. 11) the almost complete degeneration of heart-muscle fibers in the slide shown.

If it is possible to create such myocardial degenerative changes as shown in this manner by the ordinary every-day inhabitant of the saliva of the mouth, does it not behoove the dentist to take more care in excluding this growth in all of his operations on teeth? These pictures, together with the discussion of them, illustrate the chief methods of entrance of infectious micro-organisms through the dental path. The relative importance of the dental path to other possible paths by which infection may enter into the circulation is illustrated by the following fact, namely, that the total linear measurement of the gingival margin of a normal denture is thirty inches. If inflammation obtains for the depth of one-eighth inch in a mouth containing the usual number of teeth, we then have an ulcerating surface of three and three-quarters square

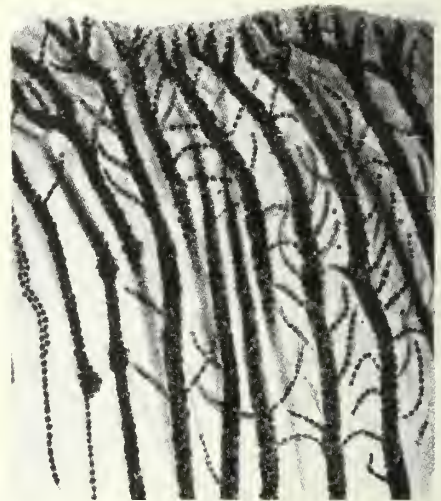


Fig. 10. Showing infected dentine undergoing decay. (From Black.)

to the gingival margin when it is slightly inflamed.

It is easy to demonstrate that there are open channels leading from the bottom of the gum margin crevice into the surrounding tissue which may just as well be the avenue through which bacteria enter the blood-stream as are the openings into the crypts of the tonsil. If one will use oxygen under pressure of twelve to sixteen pounds to the square inch, and direct a stream of this gas through a very fine blunt-nosed hypodermic needle into the gingival crevice, not thrusting the needle deep into the tissues, but only under the free margin of the gum, he will see the tissues lift and expand under the oxygen stream, which will frequently flash into the palate or back through the gum a distance of an inch or more. I find that the oxygen stream will enter the tissues from the gingival crevice of teeth that have a seemingly perfect healthy gum



margin, though it enters from ulcerating pyorrhea pockets more rapidly. This is conclusive evidence to my mind that the gingival crevice is very imperfectly protected; and, if through the imperfections in the epithelial lining of this crevice one may inject a stream of oxygen from a needle which is not in contact with the bottom of the crevice, it indicates that the openings in the crevice must be of considerable size to make this possible. That being the case, the rapid entry of bacteria into the periodontal membrane is not surprising when the necks of the teeth are heavily loaded with them, and it explains the more or less constant presence of streptococci in these tissues. The dental remedy for infection arising through the dental path need not necessarily be extraction of teeth, whether they

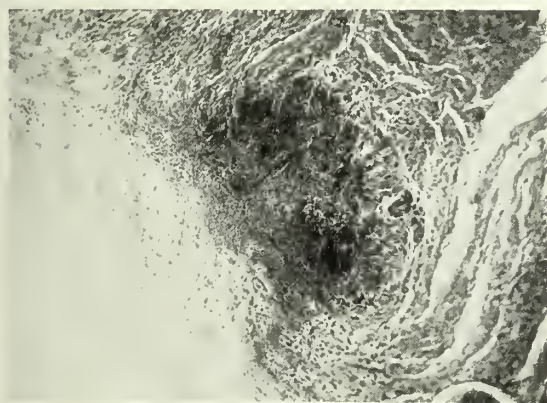


Fig. 11. Heart-muscle fibers destroyed by salivary streptococcus.

be living or pulpless. Owing to the manner of infection, as above illustrated, it is readily possible for living teeth to experience abscess. I have noted in my records, within the past two years, twenty-five cases of living teeth which have been abscessed. Dr. C. J. Grieves, of Baltimore, in one single winter during the milk-borne streptococcal epidemic there, three years ago, recorded twenty-two cases in which vital teeth were abscessed. During this epidemic a considerable number of lives were lost, and it was noted that the streptococci attacked the mucous membranes of the mouth and throat. The Glasgow epidemic and also the Chicago epidemic, so ably described in a recent paper by Hectoen, read before the Minnesota Pathological Society, emphasize the virility of streptococcal infections under conditions favorable to their development. The remedy in the hands of the dentist should be as careful asepsis in the matter of root-canal surgery as is practiced by the general surgeon,

and the elimination as far as possible of infections about the necks of teeth. The dentist must recognize that his own fingers and instruments frequently carry infection into the tissues, particularly in the surgery of pulps in the emptying of root canals. Surgeons have recognized for several years that the hands and fingers of the surgeon were frequently the conveyors of infection into aseptic wounds, and the custom of wearing sterile rubber gloves to prevent such infection has become quite common, as we all know. The surgeon who would proceed to operate on an eye, or a brain, or an appendix with instruments that were not sterile, would, in case of infection, certainly be open to prosecution for malpractice, and I believe that the lack of aseptic technic, if proven, will, in like manner, subject the dentist to the same liability.

The recent paper by Dr. Elmer Best, read be-

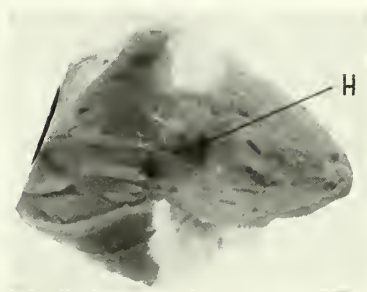


Fig. 12. Note haemorrhage at the base of papillary muscles, h, due to an intra venous injection of streptococcus viridans.

fore the New York Second District Dental Association, is a classical communication on this subject, and will take a place on the honor roll in dental literature, for it emphasizes in a clear and forceful manner the methods for safely saving pulpless teeth. Time will not permit me to discuss this phase of dental work in this paper; however, I would like to put myself on record before this association as saying that the pulpless tooth, if treated according to the laws of aseptic surgery, is just as useful and safe a unit in the dental mechanism as any other tooth. I also wish to put myself on record regarding pericemental infections to the effect that a pericemental infection, if given proper treatment by the dentist and backed up by sane, careful mouth-hygiene on the part of the patient, renders teeth undergoing such inflammation valuable for years of usefulness, but such conservation should not be undertaken without full knowledge of what possible failure to overcome dental path infection may mean to the patient, for recent research has certainly proven that the streptococcus is con-



stantly and universally present in the dental path and that lesions of the heart, blood-vessels, kidneys, and joints, can be made experimentally with this dental path streptococcus, which lesions closely resemble the commonly observed human lesions that have been noted by French writers as far back as 1828. "Many suggestions of the harmful effects of bacteria on the arterial wall have been made by clinicians. The clinical evidence of arterial changes does not in itself give proof as to the cause of the actual lesion, nor can the manner of invasion nor the progress of disease in the tissues of the artery be followed by clinical evidence alone, and it has

tome xvi, p. 499) and Hanot (*Presse méd.*, Paris, 1896, tome i, p. 649), who supported his observations by autopsy. Roche and Burnand (*Semaine méd.*, Paris, 1908, tome xxviii, p. 145) report the case of a man, aged 30, who had long suffered from rheumatism. His first attack occurred seventeen years previously, and since then he had suffered recurrent attacks, in each of which the heart was more or less involved. Recently, his heart failed to compensate for the severe lesions of the mitral and aortic valves. When seen by the authors, he was cyanosed and showed edema of the lower extremities. He had continuous fever of mod-

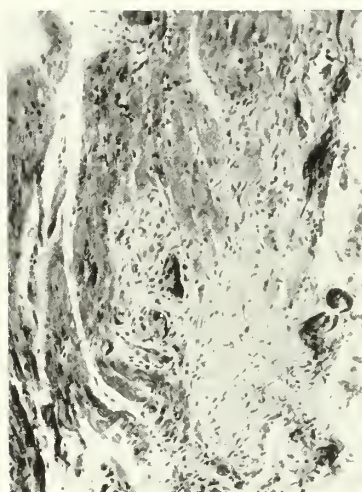


Fig. 13.

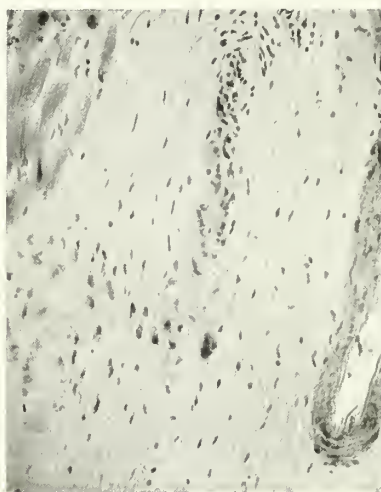


Fig. 14.

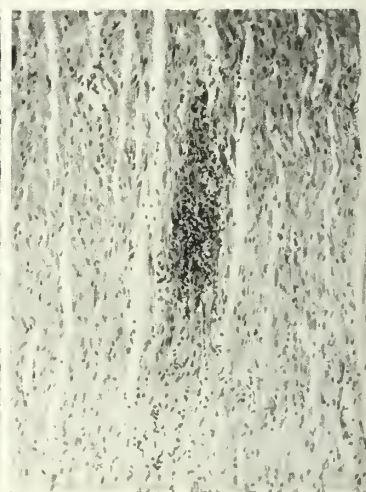


Fig. 15.

Fig. 13. Shows experimental myocarditis in a rabbit. Note the fibrosis and giant cells of the type described by Aschoff.

Fig. 14. Shows an identical type of myocarditis in a human heart, that of a girl fourteen years of age, who died after repeated attacks of acute rheumatic fever with chorea.

Fig. 15. Shows acute myocarditis produced from material taken from a dental abscess of a man who was suffering an acute iritis; such an eye is shown in Fig. 20.

been in the past difficult to determine the actual factor causing such lesions."

Syphilis has been much studied in this regard, and for many years it has been so well recognized as destructive of arterial tissues that an aneurysm of the aorta has been considered classical evidence, without the aid of other tests, of syphilitic infection. The lesion here shown in a rabbit's aorta is unquestionably due to streptococci introduced experimentally, and it serves to draw attention to the fact that arterial lesions are not always syphilitic in origin. The association of rheumatism with diseases of the vascular system has been noted, particularly by Bouillaud (*"Traité clinique du Rhumatisme,"* Paris, 1840). Others who have also written on this subject are Trousseau (*Arch. gén. de Méd.*, Paris, 1828,

erate degree. After some weeks his temperature suddenly went up, and he complained of pain in the left arm, which continued to increase. In three days the radial pulse disappeared. Gradually a very small radial pulse was again obtained. After some weeks a mass appeared close to the upper humerus, which was quite painful to the touch. Some time later the right arm became involved so that the radial pulse disappeared.

These authors believed that the clinical cases of rheumatic arteritis must be classified by analogy, comparing the clinical manifestations with the findings reported at autopsy. Leger<sup>2</sup> and Hanot<sup>3</sup> have described rheumatic aortitis, while Rabé<sup>4</sup> has studied rheumatic disease in the coronary artery. Rabé described two principal le-

sions, one consisting of a proliferating endarteritis, the other of a diffuse mesarteritis. It is probable that the other peripheral arteries react in a manner similar to, but milder than, that in the coronary arteries.

The importance of the relation of such medial disease to aneurysm is also evident, and it must be recognised that the mesarteritis occurring in rheumatism may, at times, be so severe that various forms of ectases and sacculations may occur. In fact, in the reports of Feytaud (1906)<sup>5</sup>

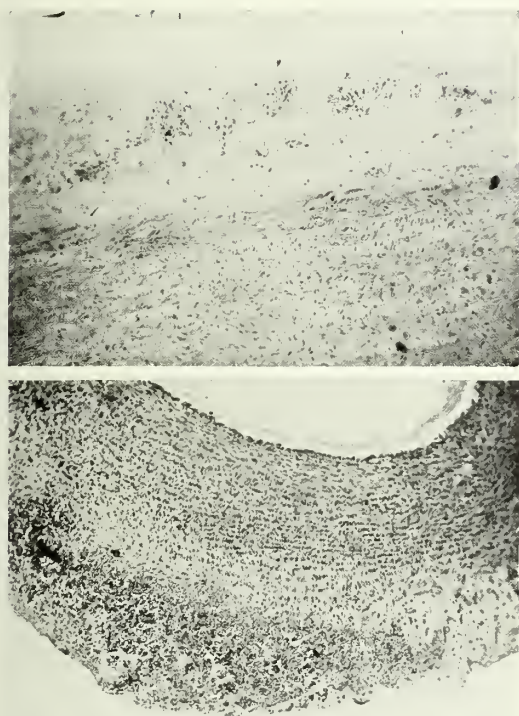


Fig. 16. Section of the aorta of the girl whose myocardium is shown in Fig. 14.

Fig. 17. A similar but more extensive lesion in the adventitia of the aorta of a rabbit inoculated with streptococcus viridans from a dental abscess.

it is stated that he had noted five cases of aneurysm in the arch of the aorta in consequence of a rheumatic infection. It would appear that aneurysms of the peripheral vessels are less frequent. Nevertheless, such have also been reported by Legroux (1884),<sup>6</sup> Roger and Gouget (1907),<sup>7</sup> as well as by Schney (1905),<sup>8</sup> who reported a case of acute aneurysm of the posterior tibial artery, developing in the course of rheumatism.<sup>9</sup> Therefore, more importance should be given to all types of acute aneurysm and their relationship to rheumatic fever; and the fairly constant presence of some

inflammatory reaction in the ascending arch of the aorta should be recognized as a possible streptococcal infection. Since it is possible to produce such an arterial lesion as Henrici has found in the example here shown (Fig. 17) from a streptococcus from the dental path, may it not be possible that many such human lesions have resulted from the constant absorption of pus from a hidden dental abscess or a deep pyorrhea pocket, which lesions may have entirely escaped notice? Indeed, I have had the opportunity to study about one hundred and twenty-seven cases of rheumatism in the past three years, and have seen rheumatism, both cured and caused by tooth-interference, cured by carefully and slowly eliminating

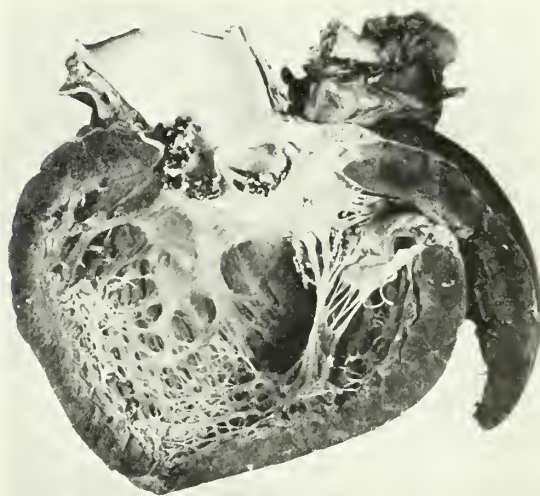


Fig. 18. Shows vegetations on the mitral valve of a patient in our series who had multiple dental abscesses.

dental infection, and caused by ill-advised and too rapid disturbance of a large number of suppurating teeth, thus rapidly overloading the patient with a heavier bacterial dose than the leucocytes could destroy.

In the experimental heart-lesions shown, we have two types of pathologic lesion, in one, in which the rabbit died after many days, we observe both degeneration and repair, one area presenting actively proliferating giant cells and another area near by presenting scar-tissue where evidently an acute inflammation had obtained and was overcome, and in which the lesion had been repaired by the formation of scar. In the other section of heart muscle shown, we have an acute process in which we have a mass of lymphocytes and polymorphonuclear leucocytes.

"These heart lesions are particularly interest-



ing when considered in relation with the work of Aschoff, Geipel, Bracht, Wächter, and others, on lesions of the myocardium in human rheumatism. These authors have all described submiliary nodules occurring in the heart-muscle which they believe occur only in rheumatism. The nodules, generally called Aschoff-Geipel bodies, are described as occurring in the intermuscular tissues, especially about the vessels. They are composed of large round cells, which Aschoff believes are derived from the wandering connective-tissue cells, arranged in a rosette about a vessel. These cells frequently form multinucleated giant cells, similar to those occurring in periosteal sarcomata. Scattered through the fibrous tissue, which is increased, about the nodule are lymphocytes and polymorphonuclears. Types of myocarditis closely resembling the Aschoff-Geipel type have been produced in rabbits by the experimental inoculation of streptococci by Bracht and

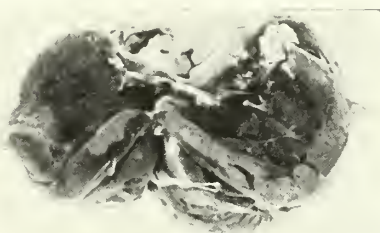


Fig. 19. Vegetative endocarditis in a rabbit experimentally produced by inoculation with streptococci obtained from a dental abscess.

Wächter,<sup>10</sup> Coombs,<sup>11</sup> and Leila Jackson.<sup>12</sup> The most recent work on this subject is by Thalheimer and Rothschild,<sup>13</sup> who found the bodies constantly present in cases of true rheumatism and chorea, but absent in cases of endocarditis due to streptococcus viridans. They also produced focal myocardial lesions in rabbits by injecting them with streptococcus viridans, but insist that these lesions are quite different from those occurring in human rheumatism, partly on the ground of differences in the staining reaction of the cells with pyronin methyl green. They give one the impression that streptococcus viridans infection, especially the ordinary type of subacute endocarditis, is quite distinct from true rheumatism."<sup>14</sup>

Please bear in mind the fact that all the lesions shown are the product of streptococcus viridans obtained from confined dental abscesses chiefly, and that the pyorrhea pocket universally contains the same organism. However, I would not minimize the importance of the tonsil as a

path for infection. This certainly has been proven as early as the time of Alfred Mantel, who first discussed its importance in the etiology of acute rheumatic fever in 1887. He published his findings in the *Quarterly Medical Journal* and the *British Medical Journal*, vol. 1, 1887, and consequently republished his observations in the *London Practitioner Limited* in January, 1912, his work being verified by Poynton and Payne. That streptococcal mouth infections introduced by any of the three paths suggested,—pulp chamber, pyorrhea, or the tonsil,—can and do result in a series of inflammations that involve heart-muscle, pericardium, endocardium, kidney, and joints, is now well attested. One of the best discussions of these conditions which has been published in the last year, is that of Klotz, of the University of Pittsburgh, under the title



Fig. 20. Shows eyes of patient with severe iritis due to a dental abscess.

"The Triple Alliance,—Heart, Kidney, and Arterial Disease." Klotz does not recognize the possible dental source of these infections.

The work of Henrici on the material presented during the past two years proves conclusively the absolutely universal presence of streptococci in the dental path. We have cultures from more than two hundred and fifty individuals. Our material has, in the main, been taken from diseased teeth. We, therefore, have attempted a series of control examinations of teeth containing living pulps. In these examinations we have sought to show that the tissues and roots about vital teeth are gum-free, but in this we have failed. We have found no teeth which have not yielded streptococci on culture, save ten, and three of these were obtained last week from the mouth of a single individual. Until we commenced to burn the tissues about the teeth with



a white-hot cautery thrust under the gum edge, we did not succeed in finding any germ-free roots. In doing this work, even though the teeth were vital, we always rub the teeth clean with alcohol, first thoroughly covering them with iodine. We then pack them off with dry gauze, finally cauterizing the gum edge, and then extract. It would seem, therefore, that the tissues about the necks of human teeth must always contain streptococci. Of course, to gather a large series of living teeth in this way is difficult, for it is

the process of elimination by surgical methods for weak or anemic persons should be gradual rather than sudden. I am not referring to the acute case, where there is a large rapidly accumulating focus of pus, for, of course, such a focus must be drained at once. It is the person with anemia who has many chronic abscesses or a pyorrhea of long standing who demands skillful attention.

The following clinical records illustrate the value of the elimination of tooth focal infections, followed by vaccine therapy as a vigorous help in myocarditis and arthritis:

CASE 1.—Mr. C. B., father and mother both living; nine children, five boys and four girls, all living and in good health except the patient.

Diagnosis made by Dr. G. D. Head.—Endocarditis of the aortic valve; aortic insufficiency; endocarditis of the mitral valve; mitral insufficiency or stenosis;

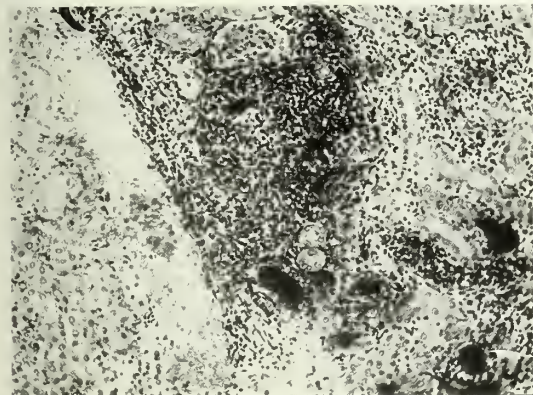
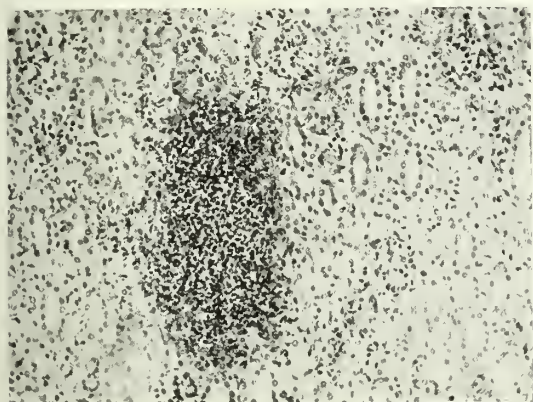


Fig. 21. Multiple abscesses in the cortex of a rabbit's kidney induced by material originally obtained from a dental abscess in the mouth of a man whose hands and feet are shown in Figs. 23 and 24.

Fig. 22. Bacterial emboli and the capillaries of the cortex have surrounding areas of inflammatory infiltration which show both pus-cells and lymphocytes.



Fig. 23. Hands of a man from whose dental abscesses we took the material originally to produce the lesions in Figs. 21 and 22.

marked cardiac hypertrophy with some dilatation; liver, not enlarged—spleen not palpable; vessel walls slightly thickened; pulse, regular and of good volume, suggestive of a water-hammer pulse; capillary pulse, present and chronic.

The first attack of rheumatism was when sixteen years of age, having fever, swelling of the joints. Knees have since troubled him. It was twenty-two years before the next attack, and it would recur every two or three years. First trouble with his heart was in his twenty-eighth year. He had another severe attack when he was thirty-three years old, and had a great deal of trouble with his heart. He has had medical care every time he has had an attack. His physicians diagnosed the case as inflammatory rheumatism. He took the baths at Hot Springs, and seemed to be helped by them, but his trouble always recurred.

After his twenty-eighth year, every attack made him weaker. Before he was twenty-eight, they did not seem to affect him physically, as far as strength was concerned. He has not been able to do so much work after his twenty-eighth year.

First notice of dental abscess was on March 25, 1914, when radiograph was taken. Had the tooth extracted

only people who wish their teeth extracted for the placing of plates who will give them up.

The slow sensitization of the individual by the constant ingestion of this coccus, and its introduction into the blood-stream through the tonsil, mucous membrane, and dental path render us all more or less susceptible to it when introduced in considerable amount. Individuals, when suddenly subjected to a large supply of streptococci, may be overwhelmed by their poison, therefore

April 1, 1914. Started with vaccine treatment April 17, 1914. Subsequent treatments were given. He sometimes felt as if he were entirely to overcome it, but the trouble would recur. If it was not for the fact that his heart was bad, he could perform his work.

May 16, 1914, he felt quite a reaction. May 18 he had one-third of new process vaccine and the balance of old process vaccine, which affected him immediately after injection was administered. Shoulders became stiff, and felt somewhat stiff the next day. Sunday evening, he felt same as usual. The vaccine dose was slowly increased from three to one hundred and fifty million, and was discontinued June 8, 1914.

The nodes on his fingers have entirely disappeared; the heart's action is much better. The patient has had exacerbation of tenderness in joints after vaccine, but shows a steady gradual improvement, and feels at the present time, June 8, 1914, as though he would be able to go to work.

When first seen the patient walked slowly on account of soreness in his knees. When climbing stairs, he also had to rest, on account of his heart weakness. At



Fig. 24. Feet of man from whose dental abscesses material was taken to produce the lesions in Figs. 21 and 22.

present, he has returned to his work as railroad passenger conductor. A report from this case May 1, 1915, finds him in splendid health.

CASE 2.—Patient 40 years old; mother of three children; had moderately good health until the winter of 1912, about which time she developed a marked evidence of arthritis in the sacro-iliac joints particularly, which at once caused her most excruciating pain, though no swelling was evident. Coincident with and following this condition, which was finally called by her medical attendant Goldthwait's disease, she developed a considerable amount of heart weakness, unaccompanied by evidence of valvular disease. Patient did not lose flesh, but was greatly reduced in physical strength, with shortness of breath, and was unable to endure protracted physical effort, spending most of the time in bed. Radiographic examination revealed five or six dental abscesses. The patient being unwilling to sacrifice the teeth, the root-canals were carefully filled, and the abscesses evacuated by lifting the periosteum, shelling out the abscess sacks in three or four instances, removing the root ends, which protruded in the rarefied area. Operations on these teeth were done at intervals of from two to three weeks. Material for a vac-

cine was obtained from one of the root-tips, which vaccine was made and administered for a time. Patient gradually improved in strength and endurance, and at the present time is vigorous and well, carrying on her work in an efficient and satisfactory manner. The heart weakness and sacro-iliac tenderness have both disappeared.

CASE 3.—A man, 68 years of age, in failing health. His urine contained albumin and many casts. Radiographs revealed presence of abscesses and pyorrhea pockets. Evacuation of the abscesses by surgical means, burring through the alveolar process and curetting vigorously, together with the obliteration of pyorrhea pockets, resulted in rapid recovery, both albumin and casts now being absent.

The number of joint infections or para-articular infections dependent upon and associated with tooth infections is very much greater than is at present appreciated. Though Henrici has only had three cases of joint infection as a result of inoculation of twenty-four rabbits, I am inclined to believe from clinical experience that this small

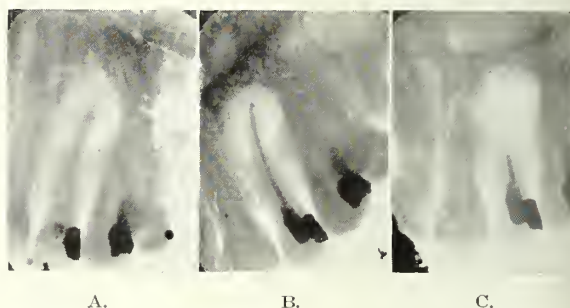


Fig. 25. A, showing tooth with abscess and the root unfilled; b, root filled; c, root tip amputated, the abscess sack removed, and the wound stitched shut. This type of case generally heals by first intention if the pulp canal is sterile and filled and the wound is filled with blood clot before it is closed.

number of experimental infections resulting from these inoculations does not give a fair criterion by which to judge the importance of streptococci in the causation of arthritis. During the past two years I have found 127 cases of mild joint inflammations, the most of which were in persons who were able to be up and about attending to their ordinary work, but under the handicap of more or less constant pain. A typical picture of this type of case would be about as follows: swelling of the finger-joints, lameness and tenderness of the arches of the instep, frequently sufficient swelling of the knee-joints to make it difficult to rise to the standing posture after having sat still for a half hour. The great majority of cases of this type should receive attention before there are permanent changes in the bone and articular surfaces; and, if they are so treated, their recovery is apt to be fairly swift and remain con-



stant. A recent case illustrates this point very nicely.

CASE 4.—Mrs. B., aged 52 years; married; mother of two children. Came under my care March 1. Knee-joints were swollen and tender to pressure; dorsum of the hands presented a fusiform swelling; fingers were enlarged at the joints; no bony changes discernible. This condition commenced three years previously, and caused much pain and distress to the patient, gradually and steadily growing worse. She has had treatment from a half dozen or more sources, finally giving up the effort as hopeless. Learning of the possibility of the dental field causing such infections as hers, she came to Minneapolis from southern Iowa. Radiographic examination of the mouth clearly showed four or five hidden dental abscesses in teeth which were perfectly comfortable, apparently in good condition, and exceedingly useful in the masticating mechanism. A number of deep pyorrhea pockets were present; and the tonsils were swollen and projecting. In view of the fact that this patient had suffered for so long a time, and seemed to be steadily growing worse, it was deemed advisable to remove the worst of the abscessed teeth. This was done at intervals of four or five days. The pyorrhea treatment was carried on at intervals of three days, the object being not to inoculate the patient with a great number of organisms at any one time and to give her the opportunity to overcome the bacterial load imposed upon her at any given treatment. The first tooth removed brought with it an abscess sack more than a quarter of an inch in diameter; and, as on that date a pyorrhea treatment had been done on two teeth, the following day was a very bad one, the patient having experienced a chill in the early evening of the day on which the treatment was done, and suffered malaise, migraine, and considerable increased joint pain. On the third day, however, the soreness and pain had receded and there seemed to be a slight improvement in the joint swelling. The pyorrhea treatment continued over a period of four weeks, at the end of which time the patient had sufficiently recovered to rise from her chair without help, the knee-joints having sufficiently improved not to cause the patient thought except on inquiry. The tonsils have not yet been disturbed. As there is still one abscessed tooth to be removed, we shall remove that, then wait a week, and have the tonsils removed the last thing.

It is interesting to note in this particular case that there has been a splendid improvement in all the joints without the removal of the tonsils, although there is not the slightest question in my mind that the tonsils should and must be removed. (A careful examination of this patient on Dec. 28, 1915, finds her in perfect health.)

Naturally, in the field in which I work I see more cases in which the teeth are concerned than in which the tonsils or any of the other paths of infection are concerned. Nevertheless, I have a contrast case of comparatively recent date in which the patient, a woman of about forty years of age, mother of two children, suffered a severe tonsillitis, resulting from an infection incurred while taking care of one of her children,

who had an exceedingly severe tonsillitis. Immediately following the tonsillitis, she developed fever and a severe para-articular inflammation of the knees, ankles, arches of the instep, fingers, and wrists. When she appeared in my clinic, the tonsils seemed to be very much enlarged and protruding. There were three or four areas of rarefaction about teeth which were bearing excellently made bridges. The mouth was clean, well kept, and no pyorrheal infection noted. As the tonsils had recently been acutely infected, I suggested that the first step should be the removal of the tonsils and, following that perhaps, the removal of the teeth. Within twenty-four hours of the removal of the tonsils, the patient commenced to improve; and though a vaccine was prepared and made, it was not used, as the whole condition faded out within a month's time, and this patient is now normal, though the teeth presenting the rarefied root ends were left undisturbed, because the patient begged so hard to retain her useful bridges.

It is unwise to jump to the conclusion that every area of rarefaction around a root end is an evidence of infection. Frequently, teeth under bridges present areas of rarefaction because of the fact that they bear an enormous increase in foot-pounds over what nature designed them to bear, and the increased stress leads to rarefaction of the bone, just as pressure in orthodontia leads to rarefaction in the direction toward which the tooth is being driven. In these cases, extraction or surgery is unnecessary. It must, however, remain a matter of judgment with the physician and dentist as to what remedial measures be undertaken in any given case. I cite these two cases because the tonsil infection is here pitted against the tooth-root infection. This brings out the fact that either may be responsible, sometimes one being responsible, and the other not, when, seemingly, they both are infected. In very strong and useful teeth upon which much depends, it is frequently possible by surgical means to relieve severe para-apical infection without extraction. To illustrate how this may be, I cite the following case:

CASE 5.—A woman, aged 45 years, had comparatively few teeth left in the arches and those teeth bearing very splendidly made bridges. These bridges were clean, and the gum margins were not inflamed. The most pain was experienced in the neighborhood of a right upper cuspid. There was no swelling to indicate infection, and the mucous membrane over the root end was of a good color. The pain continued without cessation for two days, still no swelling. Radiographic examination showed a small rarefaction around



the tip of a cuspid root. Anesthesia by novocain and suprarenin of the whole region involved, the infra-orbital nerve and the interior palatine. A semilunar incision an inch long was made over the upper third of the root of this cuspid. The periosteum was lifted and held back, and with mastoid chisels, the tooth root end was uncovered. The outer plate of bone, which usually is thin over the cuspid, proved to be an eighth of an inch in thickness, making the matter of uncovering the root end rather slow. On reaching the root end, a well-defined connective-tissue sack was found, which was tense and distended with clear fluid. This tough sack was peeled out of a smooth oval chamber, and the root tip amputated with a chisel. On account of the fact that so much acute pain had been borne by this patient, I refrained from stitching the gum and periosteum shut. The wound healed by granulation, the pain ceasing abruptly the moment the fluid in the abscess sack was liberated. Healing is now perfect, the bridge work is in position doing good service, and the mouth is clean, pink, and free from inflammation.

The better operation for that type of infection where no previous pain has been experienced is, after thoroughly removing the abscess sack, to stitch the gum and periosteum shut, covering the incision with heavy, black, creosote-iodin, made by incorporating in Merck's beechwood creosote all the iodine it will dissolve, immediately following this application with a liberal coat of glycerine in which has been incorporated all the tannic acid which the glycerine will dissolve. The application of these two coats upon the mouth-incision makes a tough, black, collodion-like covering which will remain from twenty-four to forty-eight hours, reducing the possibility of infection, and protecting the cut edges from the irritation of the lips or tongue, and at the same time preventing the ingress of mouth ferments. As a rule, the elimination of the steady intake from a primary focus of infection is sufficient in joint infections in which there have not been structural changes of the joint tissues. Nevertheless, it is always wise at the time of operating on that type of infection to secure cultures from these foci for the creation of a vaccine. Such material should be secured uncontaminated with the saliva, if it is at all possible. As ordinary salivary streptococci are always present in the mouth, unless effort is made to exclude saliva, one is absolutely sure to have streptococcal growth in the culture.

The making of a vaccine, and its preservation against future need in case of failure of complete recovery, is always a wise precaution. In about twenty per cent of my cases I have had occasion to use these vaccines. An autogenous vaccine obtained from such a source is certainly a valuable help, which I do not wish to minimize,

though my own experience leads to the belief that the elimination of the primary focus is the first and most important thing to be accomplished.

The analysis of records of 2,000 cases of periodontal inflammations shows that 10 per cent of the ambulatory type present evident secondary metastatic infections. When you stop to consider that fully 90 per cent of our population have periodontal inflammation, the importance of prophylaxis becomes evident.

I hope that in the future our increased knowledge of the relationship of joint, heart, and kidney infection to dental path infections will be so clearly understood that much pain and suffering may be prevented, through the increased co-operation between dentist and physician.

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#### DISCUSSION

DR. A. J. McCANNEL (Minot): I feel very much embarrassed to be called upon to open a discussion on this paper. The paper has been such an excellent one, and it covers a field which to most of us is so new that any extended discussion on my part is entirely out of place. However, I wish to congratulate the program committee on securing this excellent paper. This is a subject which we as doctors have been overlooking. There was a well-known rule of surgery laid down in our course on medical surgery, and it was impressed upon us more than most anything else in surgery, and that was the simple statement that "wherever and whenever pus forms, evacuate it"; and yet we have gone on, knowing at times that our patients have abscesses in their mouths, knowing that the alimentary tract is the greatest port of entry for infection, and we neglect these cases because we have felt it was the work of dentists to take care of the mouth. But such work as has been done by Dr. Hartzell in investigating the means of infection, the paths of infection, and bringing them before us in such a paper as this, and with such splendid pictures as he has shown us, has no doubt opened our eyes to the importance of the subject. I believe at the last meeting of the American Medical Association Dr. Rosenfeld and Dr. Mayo and Dr. Billings all called attention

to the systemic diseases that might come from what Dr. Hartzell called dental-path infections.

Some years ago, I believe Billings was one of the first of our medical practitioners to lay much stress upon this subject; and surely it seems to me that it has been conclusively proved that these infections can be carried into the blood vessels and into the lymphatic channels from these dental-path infections, and not only that, but they surely must be carried down the alimentary tract, locating wherever they can find a fertile field; and there they grow and develop, causing conditions that have been shown in these papers.

Dr. L. D. Bristol (Grand Forks): With all due regard to the other papers which have been presented here, I do not believe there is any one of more value or of more general interest than this paper of Dr. Hartzell. I think we should all keep in mind mouth hygiene. I am especially interested in preventive medicine, and there is no branch of preventive medicine more important than mouth hygiene. Probably 90 per cent of all body-infections come through the mouth into the digestive tract, the respiratory tract, or through the tonsils and teeth.

There is one question I should like to ask Dr. Hartzell. I was especially interested in the pictures which showed the spirochetes and fusiform bacilli. We find such a combination of organisms in cases of Vincent's angina. Are these organisms which Dr. Hartzell describes identical with those which are supposed to be the etiological agent of Vincent's angina?

DR. HARTZELL: Yes.

Dr. A. R. T. WYLIE (Grafton): When I was in college some years ago, they used to tell us there were

two kinds of knowledge,—the knowledge of description and the knowledge of appreciation. The blind man's knowledge of light would be called knowledge of description; the man that sees, knowledge of appreciation. You have had more or less knowledge of description of mouth-infection and systemic diseases, but it is only within the last few months I have had what we call knowledge of appreciation. Some time ago I realized I was suffering from this disease called pyorrhea, and I went down to the cities to see what could be done about it. The first day I was in the chair, after I was discharged I felt pretty good, and I thought I would go over to St. Paul. Along in the afternoon I began to realize I was not feeling as well as usual. My face was swelling up, the glands of my neck were swollen, and I was feeling pretty bad. At last I began to realize that possibly the fact of those teeth pockets being cleaned out was the cause of my ill feeling. In the course of half a dozen hours this feeling passed away. At a later sitting more pockets were opened up, and these symptoms were not only increased, but I noticed particularly that the muscles of the back of my neck were getting stiff, and the muscles of my back were showing symptoms of possibly beginning lumbago. That was interesting, because in my early teens my favorite disease was "stiff neck," and I have suffered a number of times from lumbago. The interesting thing to me was that this mouth disease may have existed for years, and it may have been some of these germs in my mouth that had caused this trouble of mine years ago. The symptoms disappeared in a few hours, and I was all right.

## MADELUNG'S DEFORMITIES\*

By GEORGE EARL, B. A., M. D.

ST. PAUL

Spontaneous luxation of the wrist and idiopathic progressive curvature of the radius are other and more scientific names for a palmar displacement of the hand associated with a dorsal prominence of the head of the ulna. This

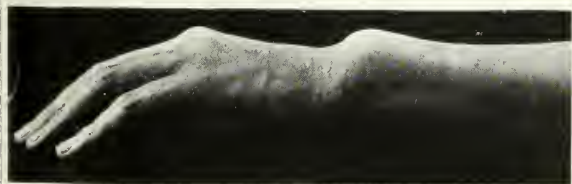


Fig. 1. Case of Miss O.

condition is first mentioned in the literature in 1823 by Begin, and next by Dupuytren in 1834. There are a few other references in the literature up to 1878, when Madelung presented the condition under the name of spontaneous for-

ward dislocation, and his description was so excellent that it has since been known under his name. It should be said at once that the expressions forward dislocation, or palmar displacement, should not be used, for, while this is usual, yet there occurs an opposite or backward type with otherwise typical features. An analysis of the literature and discussion by Stetten on page 4, vol. viii., of *Surgery, Gynecology and Obstetrics*, is worthy of special mention, and is undoubtedly our best reference to date. Text-books on surgery and orthopedics have very little on the subject, though perhaps this is not surprising because of its rarity.

There are three bony parts of the skeleton involved. To quote from Stetten:

"1. *The Radius*.—Without doubt the significant pathological lesion of a Madelung deformity concerns the radius, and consists primarily in a deviation of the inferior articular surface on a

\*Read before the Minnesota State Pathological Society, October, 1915.

transverse axis toward the palm in the anterior group, and toward the dorsum in the posterior group. This change of direction varies in degree from a very slight turning to one so great that the articular surface, instead of being nearly perpendicular, antero-posteriorly, to an ideal axis of the shaft, is almost parallel to it.

"2. *The Ulna*.—The ulna plays a more passive rôle in the development of the deformity. The caput ulnæ simply remains displaced backward or forward, and in the severer cases is

etiology, but rather have proved that it is a developmental defect.

The consensus of opinion is that the deformity of the radius is due to disease of the epiphyseal cartilage, involving an irregular ossification of the lower end of the shaft where growth is most active. The posterior portion of the lower end of the shaft continues to grow, while there is a cessation or a diminution of growth of the anterior portion, and vice versa in the backward type. The site of the bending depends upon the



Fig. 2. X-ray photograph of case.

actually dislocated in the lower radioulnar articulation.

"3. *The Wrist and Hand*.—As a natural consequence of the displacement of the main articular surface for the carpus, the latter follows the deviation and is displaced in the same direction, either forwards or backwards, but upon a plane parallel to the forearm and toward the ulna (adduction)."

A review of the literature shows that the condition is seven times more frequent in females than in males. It occurs in youth, and heredity plays an important part. Neither traumatism, inflammation, general physical condition, nor occupation has been proved to play any part in its

age at which the disease begins, the nearer the lower end of the shaft, the more recent the affection. The changes are thought to be distinctly analogous to genu valgum and genu varum.

Other explanations have been advanced as neurological and relaxed ligament theories. The neurological theory appears to be purely speculative. The relaxation of ligaments is undoubtedly the effect, and not the cause, of bowing of the radius. The argument that the stronger action of the flexor tendons causes the deformity, seems refuted by the existence of a backward type.

Miss O., age 19, American born, came July 14, 1915, complaining of pain in left wrist and elbow and right



wrist. A short time later she complained of pain in her right ankle. There was in both wrists a marked deformity, as shown in the picture and x-ray plates. This condition had begun in June, 1914, with pain in the left

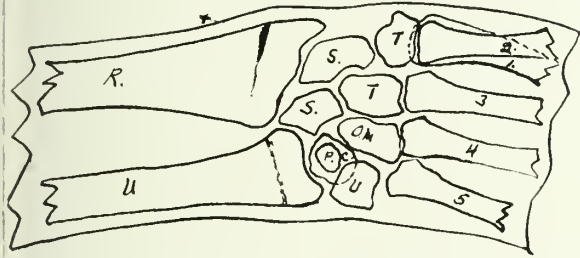


Fig. 3. Diagrammatic sketch of Fig. 2, showing the first metacarpal bone directly under the second. The X shows the irregular ossification of the radius (the chief pathological lesion of a Madelung deformity).

wrist, later in the elbow; and in the early spring it was followed by pain in the other wrist. As to previous diseases: the patient had had measles and a great deal of toothache in the lower right jaw. She had never menstruated, though nineteen years of age. It is inter-



Fig. 4. X-ray photograph. Lateral position.

esting to know that the mother had had a similar experience until twenty years of age, and was of a weak constitution. Otherwise the family history was negative. The patient had an enlargement of the thyroid; temperature, 100°; pulse, 104; hemoglobin, 85; urinalysis, negative. She had headaches and almost continual vertigo. She had some nasal obstruction and ragged tonsils, and the x-ray showed an abscessed tooth. Physical

examination showed a small infantile uterus; also a general relaxation of all joint structures. On grasping the hand the carpal bones had a tendency to fall together or overlap, giving the impression of extreme looseness.

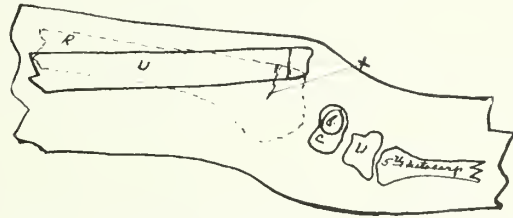


Fig. 5. Diagrammatic sketch of Fig. 4, showing relation of end of ulna to cuneiform, unciform, and fifth metacarpal bones. The X shows the irregular ossification of the radius.

The value of any case-report is not only in trying to point out resemblances to previously reported cases, but to show particular features of each individual case. The x-ray plates of this case show quite typically the features as described by Stetten. The epiphyseal lines of the

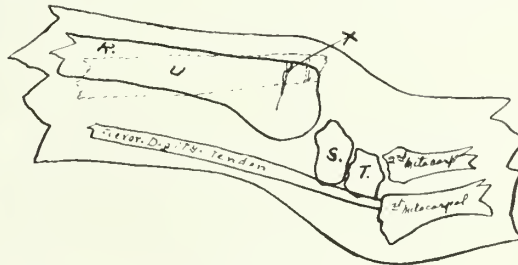


Fig. 6. Sketch showing relation of end of radius to scaphoid, trapezoid, and first two metacarpal bones. The X shows the irregular ossification of the radius.

radii are of special interest, showing the faulty union of the epiphyses. It would seem that about one-half of the epiphyseal line is obliterated, the other half showing activity, the mechanics of which would result in the turning of the wrist

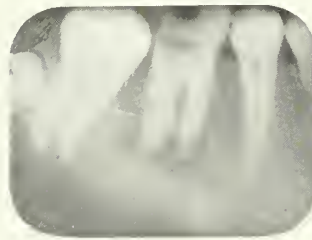


Fig. 7. Abscessed root.

joint. The bowing of the radius, present in a portion of the cases, is absent here because of the lateness of the development of the disease with reference to years of ossification.

The general relaxation of ligaments present in this case has been mentioned. Little has been written about this, and it is possible that it was

only incidental. On the other hand it may be of more importance than has been thought.

There has been an argument throughout the literature as to the part the flexor and extensor tendons play in the matter, a few claiming that a part of the deformity is due to increased activity on their part. There is no foundation for the existence of such a belief unless the pain resulting in the wrist is a factor in such action, causing the usual contractures. All the findings would, however, make it appear that the bony structures are directly responsible for the deformity.

While infection has been little mentioned in the literature it finds a considerable basis in our case because after the removal of the patient's diseased tonsils and the extraction of the abscessed root the condition has been arrested, and the patient has been quite comfortable,—this in a little over a year's time after the onset, whereas the usual run of these cases before the subsidence of pain is from two to five years. Another factor speaking for an infectious process is, that so many joints were involved,—two wrists, an elbow, and the ankle slightly.

## THE TREATMENT OF INTRACTABLE, PRURITUS ANI BY LOCAL ANESTHETIC METHODS\*

BY WILLIAM E. GROUND, M. D., F. A. C. S.

SUPERIOR, WISCONSIN

Pruritus ani is sometimes one of the most intractable and exasperating of the minor surgical diseases, and often tries the patience of the patient and the resources of the surgeon to the utmost. I, therefore, may be pardoned for discussing such a plebeian subject as itching of the anus.

The factors that seem to play an important part in the etiology of pruritus in this locality, are, apparently, irritation, moisture, variations of temperature, and concomitant congestion.

Murray, of Syracuse, regards pruritus ani as a fixed microbic infection, best treated by autogenous vaccines. With this method I have had no experience, but offer it as a working hypothesis for those inclined to labor along these lines. I must say that Dr. Murray has presented the subject in a most interesting and convincing manner, and his researches can be found described, in extenso, in the "Transactions of the American Proctological Society," for the last two years.

Exclusive of the vaccine treatment, I have had recourse to almost every line of treatment that I have ever heard of. This includes, primarily, the removal of all piles, fissures, and polypi, and the treatment of ulcerated and catarrhal conditions of the rectum and colon. Yet many of these cases were not cured. The operative procedures were invariably followed up by attention to general health, and the correction, so far as possible, of faulty elimination, particularly as regards the bowels. While the vast majority of

the cases yielded, there was a respectable minority that did not.

After all is said, the particular entity at work is an irritation of the terminal nerves around the anus, the obtunding of which is a consummation devoutly to be wished.

This is effected more or less by the local application of the various antipruritics and anesthetics. These are often effective, temporarily at least, but frequent repetition is necessary. Ball effected the release of irritation by the subcutaneous division of the nerves supplying the affected area. I have done this operation with success, so far as the itching was concerned, but there sometimes occurred annoying after-results, the details of which I shall not stop to consider.

Having been interested in local anesthetics and local anesthesia for surgical purposes, for several years, I thought to turn my experience to account here. The use of cocaine or novocaine was clearly out of the question, owing to the transitory nature of their effects. For many reasons quinine and urea hydrochlorid suggested itself. The direct anesthetic effect of this drug lasts for several days, varying according to the strength of the solution, the proximity to the nerve supply, and other accentuating influences.

I shall not pad this contribution by attempting a description, clinical or pathological, of this protean affection, but I want to quote a few sentences from an article by Unna on the "Origin and Cure of Itching," as translated by the *Journal of the A. M. A.* for January 15, 1916.

Unna declares that itching results from an irritation of the free nerve-terminations in the

\*Part of a discussion on Local Anesthesia, Interurban Academy of Medicine, Duluth, Jan. 19, 1916.

blood-capillaries in the papillary layer of the skin. In order that itching occur, there must be papillæ containing blood-vessels and a horny layer above; otherwise there is no pressure on the vascular papillæ. Whenever the pressure of the horny layer increases along with the capillary pressure, itching follows. Hence there is itching in dry eczema, lichen and prurigo papules, and incipient folliculitis and furuncles. Simple thickening of the horny layer, without increased capillary pressure, does not alone entail itching. But when the temperature changes, and thus a change in the capillary pressure is brought about, the region may itch. Anemic surfaces never itch.

We have in pruritus ani and vulvæ the very acme of conditions to produce itching of the most tenacious and severe kind. The cutaneous horny layer has become thickened from prolonged disturbances of its blood-supply and from contracture of the musculature of the skin; and it exerts great pressure, especially when we take into consideration the paralyzed condition of the vascular walls, with excessive inflow and stasis, hyperemia.

From the foregoing it can be readily seen that the fundamentals to be met in the treatment of pruritus, are to diminish the blood-supply and to desensitize the terminal nerves in the capillaries of the skin. These indications are fully met by the use of the double salt of quinine. In addition to the prolonged anesthetic effect of the quinine, it has a decided tendency to restrict the circulation distal to the point of injection. This faculty of diminishing blood-supply was determined by Hertzler to be due to a pure fibrinous exudate forming around the vessels and occluding them by pressure from without. The amount of this fibrous exudate depends almost entirely upon the strength of the solution used. This exudate does not appear with a solution of 0.25 per cent or less, but with 0.5 and 1 per cent it is usually very pronounced. This fibrinous induration is particularly noticeable where the solution is made with plain sterile water instead of the physiological salt solution. The stronger the solution the greater the exudate and subsequent induration, until the point is reached where sloughing will occur, as I can testify. This interference with the circulation is what makes this quinine salt undesirable as an anesthetic where primary union is expected; for, if used in a strength where it is effective as an anesthetic, it does interfere with the best healing.

*Procedure.*—Several hours after the bowels have been thoroughly evacuated by a mild laxative the anal region is disinfected, preferably with McDonald's pyxol solution. A preliminary injection of cocaine and adrenalin or novocaine is made endermatically. The point of insertion is usually about an inch from the anal margin on a line with the tuberosity of the ischium. This prevents, to a considerable extent, the burning sensation that accompanies the injection of the quinine. The needle is then entered at the point of previous injection, and directed subcutaneously toward the midline back of the anus, depositing a dram of a 1 per cent solution as the needle is pushed along. The needle is withdrawn and the syringe refilled if it is a small one, and re-inserted at the same point and directed laterally about an inch from the anus, and pushed forward toward the perineum injecting as we advance. Another injection is made until the needle with the finger in the anus can be felt under the mucous membrane, but be sure not to puncture through. While the needle is in this position it is partially withdrawn, and thrust around the anal margin just under the mucous membrane well to the raphe. Be careful not to inject into the anal sphincter, as a rectal incontinence might occur that would be unpleasant for a few days, for, be it remembered, local anesthesia produces as much, if not more, muscular relaxation than general anesthesia. Of course the injections are made on both sides. Injections are to be subcutaneous and not intramuscular.

If the technic has been properly executed, complete relief of from two weeks to a month can be confidently expected. Often with palliative after treatment the symptoms, except occasionally in a mild form, do not return. But if the pruritus should return the treatment can be repeated. If the second operation is necessary, in addition to the usual injection, I deposit a syringe of under the ischial tuberosities, for it is from this region the main nerve supply comes. If the case is very rebellious I have, at the last treatment, injected alcohol around the paths of my quinine injections, only a drop or two at a point. Alcohol, as we know, has been used very successfully in the treatment of various neuralgias, and Otto May has shown that alcohol produces a real degeneration of the nerve fibers with which it comes in contact.



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## MALPRACTICE VERDICT FOR \$5,000

One of the most bitterly and exhaustively fought medico-legal battles was carried on in the district court in Mankato when Fred A. Moehlenbrock, as administrator of the estate of his late son, Albert R., brought suit against the Parke, Davis & Co., of Chicago, and Drs. J. P. Rosenwald and Roy N. Andrews, of Mankato. The case was in court for nearly three weeks, and the base of the suit was founded upon the death of the son while submitting to an operation for the removal of his tonsils, on March 26, 1914.

The physicians in the case believed that the ether which was administered was impure, and as it was supplied by Parke, Davis & Co., they undertook to defend themselves and their ether. Evidently the trial of the case bore upon the minds of the jurors, for when they came to consider the case they brought in a verdict of five thousand dollars against Parke, Davis & Co. and the two physicians collectively. It is rather interesting to note that the special findings in the case were given to the jury by the judge as follows:

1. Was the ether which was tested by the witness Hortvet a part of the same identical can

of ether from which ether was administered to plaintiff's intestate, Albert R. Moehlenbrock, at the time of the operation in the Immanuel hospital March 26, 1914?

Answer: Yes.

2. Was the defendant, Parke, Davis & Co., negligent in its preparation, packing, or marketing of the ether which was administered to Albert R. Moehlenbrock March 26, 1914?

Answer: Yes.

3. On March 26, 1914, at the time of the operation, were there any impurities in the ether in the can from which ether was administered to Albert R. Moehlenbrock?

Answer: Yes.

4. Was the death of Albert R. Moehlenbrock due to any negligence of defendants Rosenwald and Andrews, or either of them?

Answer: Yes.

This, as far as it is known, is the first case of its kind that has been brought in which a verdict was returned for an accidental death under the anesthetic, and it stands to reason that because anesthetics occasionally, and really very rarely, cause death, that the supreme court will be called upon to pass judgment upon the verdict. The probabilities are that the verdict will not stand unless it is proven beyond a reasonable doubt that the ether was not what it was represented to be. If that be so, the two physicians should be relieved of their part of the burden, and if the ether was the usual kind that is sold to physicians by the druggists and manufacturers, then, too, the verdict will fall by lack of confirmation.

The physicians were insured by the Fidelity & Casualty Company of New York, and the attorneys representing the Company were H. L. Schmidt, of Minneapolis, and S. D. Wilson, of Mankato. No request was made for the Minnesota State Defense Association to participate in the suit, perhaps for the reason that the average casualty or protective company either has a clause in its contract which prevents other associations from assisting in the defense, or they prefer to carry it on alone for their own personal reasons. On the other hand, it brings into question the stability of the Minnesota Defense Association, and that is a point which should be determined at the earliest possible moment. It happens that at the present time there are two physicians being sued for malpractice

in Minneapolis, one case coming up next week, the other coming up later. In both of these cases the Minnesota Defense Association will have entire charge of the defense. The outcome will be looked forward to either as an endorsement or refutation of the Minnesota Association. So far in the life of the Defense Association of the Minnesota State Medical Association, cases have either been settled or not brought into court, except in one instance, when a small verdict was paid by the State Association.

Some of the members of the State Association object to the extra fee of \$1.00 which makes up the defense fund, one physician expressing himself very emphatically and saying he thought the plan of the Defense Association was wrong, and that physicians should not be required to pay the extra dollar. This matter should be brought up before the Association meeting in October, and finally settled.

#### AN ITINERANT PRACTITIONER

Clippings have come to the office of the JOURNAL-LANCET from St. Cloud papers announcing in prominent headlines the "Coming to St. Cloud of Dr. J. E. Doran, Specialist." Another headline is "Another Opportunity to Consult an Eminent Specialist." Dr. Doran claims in his advertising that he has authorized license from the "State Medical Board" to visit the different towns in Minnesota; that he treats diseases without surgery; and that he stays but one day in a town, his headquarters being at the principal hotel of the town.

Dr. J. E. Doran is a graduate of the University of Minnesota, and was licensed in 1898. The directory gives his office hours and his location, the Boston Block, so that he is a regularly qualified practitioner, licensed by the State Board of Medical Examiners, and yet he advertises "consultation, examination, and advice free, except the expense of medicine, and all that is asked in return for these valuable services is that every person treated will state the results obtained to their friends and thus prove to the sick and afflicted in every city and locality that this treatment is reasonably sure and certain in its effects." A statement of this kind sounds very much like a quack advertisement, and also a generous bid for more patients, who presumably will need

medicine, for which they will presumably pay. The doctor further states that according to this system, "no operations for appendicitis, gallstones, tumors, goitre, or certain forms of cancer will be needed." He further offers to "treat diseases of the stomach, intestines, liver, blood, skin, nerves, heart, spleen, kidneys or bladder, catarrhal deafness, rheumatism, sciatica, bed-wetting, leg ulcers, weak lungs, and those afflicted with long-standing, deep-seated chronic diseases that have baffled the skill of the family physician." This further statement emphasizes the quack methods which Dr. Doran has copied. In one of the papers he has testimonials from former patients which again read like the ordinary quack literature. Many of these qualifications and the setting forth of the ability of this celebrated specialist, might have been very much shortened if he had simply advertised that he was a specialist of acute and chronic diseases of men, women, and children.

The assumption is that the medical men of St. Cloud and other places where Dr. Doran advertises and operates resent this form of quackery, and yet have they done anything toward suppressing it? Is it not within the power and scope of the local medical society, co-operating with the county attorney, to object to, to complain of, and to prosecute a man who practices medicine in this unethical manner? There is altogether too much indifference among medical men in suppressing quack literature and quack practitioners, and it would be a matter of pride and commendation if a local society would take this matter up and carry it to its destination, the pool of oblivion.

The State Board of Medical Examiners find it very difficult to prosecute a case of this kind, particularly where a man holds a license to practice in Minnesota, and also has an itinerant license. The result is that the State Board is almost helpless, for if they revoke a license of this sort, the injured party immediately applies to the courts, and the court issues an order not to revoke the license until it is presented to the courts. The past experience of the Board in revoking these licenses for such causes has been unfortunate, particularly when the matter is presented for a jury trial, for the jurors can see nothing unprofessional in such methods.

It is hoped, however, that the matter will not be entirely dropped without a reasonable try-out.

## MISCELLANY

DR. ARTHUR W. DUNNING

### AN APPRECIATION

When one of our friends and fellow workers passes away, we are suddenly brought to realize that we miss something which we have always accepted as usual in our lives. In the busy work of our profession we have not time to stop and manifest the fraternal regard that we feel for one another. Besides, it is considered rather unmanly for us to express our feelings without restraint, and we acquire a habit of repression that forbids us to say kind words to each other. The reproach of unspoken words affects us keenly when we awake to the fact that it is now too late to speak them.

During Dr. Dunning's life, however, we think that he realized the fraternal and rather affectionate feeling we all had for him. It was manifested more in our attitude and manner than in anything that was said. Dr. Dunning's personality was such a kindly one that it rather invited kindly expression. He was one of the gentle kind. He was not so engrossed with the material things of life that his high idealism was impaired; not so devoted to the ambition of professional success that his finer sensibilities were dulled, and not so interested in himself that he did not always think of others. His was a fine nature. He was professionally an earnest student and worker; a rather humble disciple at the feet of the great ones in medicine; a strenuous seeker after medical knowledge. He had a rare charm of personality. He carried to his patients comfort and optimism; his strength supported them in their weakness and carried them through the period of anxiety and fear, and they were buoyed up by confidence and hope, of which he was an unfailing source. His idea of success in his profession was the real practical benefit he could give to the community, apart from selfish considerations. His activities were not those alone of the physician. He was a citizen as well. He took an active share in the betterment of social conditions, and in the welfare of the class of coming citizens whose interests have been too much neglected. In the school gardens and in the playgrounds he has left his mark as a citizen with ideals, and the future years will bear abundantly the fruit of his efforts.

In summing up his career we feel that Dr.

Dunning has achieved an enviable success in life, if success is measured by its proper values. The possession of a kindly, sunny, and buoyant temperament; the faculty of diffusing optimism and cheer; the gift of an idealism which has kept his eyes upward; a scholarship in his profession which placed him high in our ranks—won him friends and devoted admirers. Our associations with him were always of the pleasantest, and we shall miss, but not forget, him.

C. EUGENE RIGGS, M. D.,

ARTHUR SWEENEY, M. D.,

ARTHUR S. HAMILTON, M. D.,

Committee of the Minnesota Neurological Society.

## REPORTS OF SOCIETIES

### RED RIVER VALLEY MEDICAL SOCIETY

The regular meeting of the Society was held at Crookston, March 30. After the regular business Dr. Leo. M. Crafts, of Minneapolis, read a very interesting and instructive paper on "The Relationship of Buccal Infections to Diseases of the Nervous System." Dr. H. W. Froehlich, of Thief River Falls, read a paper on "Puerperal Eclampsia."

F. M. DRYDEN, M. D.

Secretary.

### HENNEPIN COUNTY MEDICAL SOCIETY

The monthly meeting of the Society was held in the Library Rooms, Donaldson Building, on Monday, April 3.

President Cross in the chair and 103 present.

The report of the Committee on the President's Address, in regard to the Relief Fund, was presented by Dr. Abbott.

In the report of the Executive Committee, presented by Dr. Green, the following resolution as adopted by the committee was read:

Moved, That, after careful consideration of the matter of credit ratings, the Executive Committee recommend that members, individually and in groups, take stock in The Minneapolis Associated Credit Exchange, Inc., and report their bad debts to it.

This report was accepted and a circular letter will be issued covering all points of the report.

Dr. Court R. Stanley, formerly of Chicago, was elected to membership.

The program was as follows:

"A Roentgen Study of the Large Intestine



and Appendix," by Dr. Douglas Ford Robbins.

"The Roentgen Diagnosis of Lesions in the Region of the Pylorus," by Dr. Frank S. Bissell.

"Roentgen Diagnosis of Thoracic Aneurysm," by Dr. C. A. Donaldson.

"Diastolic Blood Pressure," by Dr. Lawrence W. Littig, of Davenport, Iowa, President of the Western Surgical Association.

Dr. Littig's paper was discussed by Drs. Moore, W. A. Jones, Leland, Corbett, Sweetser, Law, and Schlutz.

Dr. H. W. Jones presented a specimen of brain tumor.

Dr. E. R. Hare reported a case of acute suppurative and perforative diverticulitis.

Dr. Moore reported a case in which they were unable to make a proper diagnosis, though it seemed to be a case of Addison's Disease.

The following resolution was adopted:

Resolved, That the Secretary be requested to write to Dr. Bracken requesting the State Board of Health to make a ruling for Hennepin County in regard to the use of prophylactic treatment for the eyes of the newborn, and also to correspond with the Ramsey and St. Louis County Medical Societies with the object of securing their co-operation in making similar requests for their respective counties.

S. R. MAXEINER, M. D., Secretary.

## BOOK NOTICES

PRACTICAL MEDICINE SERIES. Volume vii. Obstetrics. Edited by Joseph B. De Lee, A. M., M. D., Professor of Obstetrics at the Northwestern Medical School. Published by The Year Book Publishers, Chicago, 1915. Price of this volume, \$1.50. Price of the series of 10 vols., \$10.

This book presents in abstract form a study of the recent progress made in Obstetrics. Under Physiology of Pregnancy, especial attention is given to serum studies, the theory, value, and clinical significance of the Abderhalden test being discussed somewhat at length.

The common and uncommon complications of pregnancy are discussed in a series of short articles. Those of special interest to the practitioner, such as the toxemias of pregnancy, pernicious vomiting, eclampsia, abortion, and ectopic pregnancy are given especial attention. Part II of the book deals with the treatment of labor. The selection of articles on this subject has been especially careful, making the study very practical.

The use of pituitrin in labor, scopolamine-morphine analgesia, nitrous-oxide anesthesia, treatment of placenta previa, and the course of labor in contracted pelvis are among the most interesting subjects discussed.

Under operative obstetrics are taken up, the induction

of premature labor, the treatment of second degree pelvic contractions, Cesarean section, and perineorrhaphy. A number of illustrations enhance the value of this chapter.

The remainder of the book is devoted to studies of the management of the puerperium, to the treatment of puerperal sepsis, and to the diseases and accidents affecting the newborn.

Numerous notes and comments by the editor, interspersed throughout the book add materially to its interest and practical value.

—BARNARD.

POST-MORTEM EXAMINATIONS. By William S. Wadsworth, M. D., Coroner's Physician of Philadelphia. Octavo volume of 598 pages, with 304 original illustrations. Philadelphia and London: W. B. Saunders Company. 1915. Cloth, \$6 net; half-morocco, \$7.50 net.

Dr. Wadsworth's book possesses the following distinct advantages: (1) as a basis, an experience with over 4,000 post-mortem examinations; (2) a wealth of illustrations not equalled in any other book of its kind; (3) a wealth of technical detail, especially in relation to instruments, which are all beautifully illustrated and carefully explained; (4) a viewpoint in which originality is particularly noteworthy.

The following criticisms would seem justifiable: (1) lack of correlation with pathologic histology; (2) an undue amount of discussion and personal opinions not demanded by many of the subjects treated; (3) a lack of concise references to any literature, especially foreign; (4) a lack of correlation between the conclusions justified by post-mortem examination and the clinical phenomena which may have been exhibited before death; (5) many of the photographs, particularly of gross specimens, would have been markedly improved if the "high lights" could have been cut out by photographing the specimens under the surface of clear water.

—ROBERTSON.

THE PRACTICAL MEDICINE SERIES. Edited by Drs. E. C. Dudley and H. M. Stowe, Chicago. Series 1915. Published by the Year Book Publishers.

These little volumes which come to the desk once a year are epitomes of the literature of the preceding year. They are particularly valuable to the man who has not the time to keep abreast of the current medical literature, and few men have. The editors have studiously adhered to the plan of reviewing only articles which present something new, or an improvement on something old.

The book is classified into six parts. The first part deals with the General Principles of Gynecology, the second, with Disorders of Menstruation, the third, with Displacements and Injuries, the fourth, with infections and Allied Disorders, the fifth, Malformations and Tumors, and the sixth with Sterility. The editors not only review the articles, but supplement them with valuable editorial notes.

To here present a review of this work would be to attempt a review of the whole of gynecological literature for the year. Suffice it to say, that every one interested in the study of Gynecology and keeping up to date in the subject should have this little volume come to his desk every year. From it he can get a very concise review, and he can then go to the original articles if he wishes more complete information.

—LITZENBERG.

PEDIATRICS, edited by Isaac A. Abt, M. D. Orthopedic Surgery, edited by John Ridlon, A. M., M. D. of Chicago, with the collaboration of Charles A. Parker, M. D. Volume v of the Practical Medicine Series for the year 1915. Price of this volume, \$1.35. Price of the series of 10 volumes, \$10.00. Chicago, Ill.: The Year Book Publishers.

This is an unusually comprehensive treatise on both pediatric and orthopedic subjects. The latest views and conceptions held at the present time on important conditions in both fields are clearly presented and the salient features emphasized. Infant-feeding is particularly thoroughly gone into. The concise style of the authors makes the reading clear and a pleasure.

This little volume will be as popular as those which have gone before.

—SCHLUTZ.

INTERNATIONAL CLINICS. Vol. III, Twenty-fifth series, 1915. J. B. Lippincott Company, Philadelphia. Price, \$2.

This volume of 298 pages has not as many articles to interest the general practitioner as most of the preceding ones of the series, but there are still those to whom the half-dozen pages devoted to Therapeutic Technic, by Dr. Wm. Brady, would still be of advantage—that is, would be if they would but heed these oft-repeated old truths.

—TALBOT.

BONE-GRAFT SURGERY. By Fred H. Albee, A. B. M. D., F. A. C. S. Professor of Orthopedic Surgery at the New York Post-Graduate Medical School and at the University of Vermont. 605 pages, with 322 illustrations, some of them in color. Philadelphia and London. W. B. Saunders Company. 1915. Cloth, \$6 net.

The first chapter of this book is devoted to the fundamental principles underlying the use of the bone-graft in surgery. In it are discussed the histology of the bone-graft, the efficiency and deficiency of the various forms, some of the experimental surgery, and the important Wolff's law which is the foundation for the treatment of deformities and the application of grafts of any kind. In this connection the author establishes the much-discussed function of the periosteum.

Chapter two deals with the author's ingenious instruments and the technique of their usage.

Chapter three is devoted to the bone-graft in the treatment of Pott's disease and other lesions of the spine, as paralytic scoliosis, spondylolisthesis, spina-bifida, spinal fracture, tuberculosis, and dislocation of the sacro-iliac joint. Many cases of experimental surgery are cited.

Chapter four considers the inlay bone-graft in the treatment of fractures. The efficiency of the inlay-graft over any other means of fixation, notably the Lane plate, is brought out in detail. Considerable space is given to the author's technique.

Chapter five considers the operative methods for remodelling or ankylosing the hip-joint. Technique is given for the use of the bone-graft wedge in the treatment of congenital and acquired dislocation; selected cases of osteoarthritis, adult tuberculosis, hip-joint disease and certain traumatic and paralytic hips; astragalus graft for loss of femoral head; autogenous bone-grafts to replace bone lost by benign growths.

Chapter six deals with the inlay bone-graft for the fixation of tuberculous knee-joints; infantile paralysis;

osteoarthropathy; and wedge graft for habitual dislocation of the patella.

Chapter seven considers the bone-graft in the treatment of diseases and deformities of the foot and leg, such as club-foot, flat-foot, arthrodesis of the ankle, congenital absence of the fibula, etc.

In chapter eight miscellaneous surgical uses of the bone-graft are given.

The book is profusely illustrated with skiagrams, photographs, and drawings. Numerous case histories enhance its value.

—SIMONS.

LABORATORY METHODS. By Williams and Williams. Published by C. V. Mosby Co. Price, \$2.50. 1915. Third edition.

This compact volume is similar in form to the two previous editions, there having been no change in the text with the exception of a few items in the appendix. It would have been well, perhaps, to have incorporated into this edition a few minor changes in the text to conform with more recent ideas. Although the author has constructed his material more or less in outline form, diction is not sacrificed for brevity. The worker has before him a description of materials and methods in graphic form, and has also occasional references to more thorough works on clinical diagnosis.

The physician is cautioned as to the limitations of the text. There should be more frequent caution as to the value of the tests performed by those who are doing the many laboratory tests at infrequent intervals.

"Laboratory Methods" should occupy a prominent place along with the larger text-books in the laboratory of the physician who has allowed the dust to obscure his microscope, and it should be just as accessible in the sanctum of the expert microscopist. It should stimulate the general practitioner to the use of ordinary laboratory tests, and to an understanding of the more complex procedures, which should be left to the specialists in clinical diagnosis.

The chapters dealing with "Laboratory Prophylaxis" and "Indications for Laboratory Aids" are commendable. The index is complete and very well arranged. The scope and purpose of the book are accomplished.

—JOSEWICH.

TRANSACTIONS OF THE TRI-STATE MEDICAL ASSOCIATION for 1915.

The above-named Association is composed of the medical men of the Carolinas and Virginia. It is a volume of 436 pages, bound in cloth, and well printed. Its contents cover the entire field of medicine, and well represent the high grade work in both medicine and surgery that is being done by the best men in the South. We think it exceedingly unfortunate that so much excellent material should be buried in a volume of transactions not easily obtainable. Certainly, every medical society should have every book of this kind in its library, but, as a rule, no provision is made for the distribution of such books.

The book, like many others of its kind, has one important defect: the discussions on the papers are not printed with the papers, and are probably not available to anyone.

Dr. E. C. Register, Charlotte, N. C., is president of the Tri-State Association, and, no doubt, will answer any inquiry concerning this volume or the work of his association.

## NEWS ITEMS

A hospital association has been incorporated at Elbow Lake.

Dr. T. M. Stewart, of Canastota, S. D., has moved to Mitchell, S. D.

Dr. J. A. DuBois, of Sauk Centre, is recovering from a very serious illness.

Dr. E. W. Johnson, of Bemidji, was married April 5, to Miss Jessie Phillips, of Minneapolis.

The appointment of Dr. F. J. Darragh, an osteopath, as city physician of Bemidji, has been annulled.

Dr. A. T. Conley, of Cannon Falls, is reported to be near death, having suffered a stroke of paralysis.

Dr. Hans Grivelli, of Hohenwald, Tenn., but formerly of Norwood, Minn., died suddenly at his home, March 28.

Stillwater has employed a visiting nurse for one month, but the plan will be permanent if the results seem sufficient.

Dr. E. S. O'Hare, a graduate of the Medical School of the University of Minnesota, has located at Alberta, Minn.

Morton County, North Dakota, has opened a campaign against physicians and midwives who practice without a license.

Dr. A. V. Denman, formerly an associate of Dr. A. E. Sohmer, of Mankato, has opened offices for himself in the same city.

The nurses of west central Minnesota have organized an association for the advancement of nursing in town and country communities.

Dr. Hugo Mella, who for some time has been house doctor at the Bismarck Hospital, has become associated with Dr. L. A. Schipfer, of Bismarck.

St. Paul and Ramsey County are to have a free medical dispensary as the result of a will left by Judge Henry Hale, who died twenty-five years ago.

The Minnesota State Board of Medical Examiners will hold a semi-annual examination at the Capitol, April 28 and 29. The tests will begin at 9 a. m. each day.

The new \$125,000 wing of the Minneapolis Asbury Hospital is to be finished May 1. The

hospital will then have 184 beds and will represent an outlay of \$325,000.

The Medico-Chirurgical College and the Jefferson Medical College, of Philadelphia, are to merge with the Medical Department of the State University of Pennsylvania.

Dr. G. J. Thomas, who has been with the Mayo Clinic for the last seven years, in the urological service, is moving to Minneapolis the first of July to be associated with Dr. Hugh S. Willson.

Dr. John Sinclair died April 6 at his home in Minneapolis. He was born in 1836 in Quebec Province, Canada, and had received degrees at the University of Toronto, Bellevue College, and at Rush Medical School.

Don F. Cameron is to have the distinction of being the first fellow sent by the University of Minnesota to the Mayo graduate school at Rochester on the exchange plan of student fellowships. Mr. Cameron is a graduate student at the university and a resident of Hamilton, Ind.

Dr. Emma Katherine Ogden, a graduate of the Women's Medical College of Pennsylvania in 1875, for a time a missionary of the Congregational Church in India, for thirty-five years a resident and practicing physician of Detroit, Minnesota, and prominent in social and fraternal circles, died at Detroit, Wednesday, April 5, from pneumonia, aged 76.

Dr. George B. Young, Assistant Surgeon General in the United States public health service, who is detailed to public health survey work in Minnesota, is to begin work April 15. It is expected that he will work first in Minneapolis, which was the first city to apply for the survey. The government has agreed to make the survey in Minneapolis, St. Paul, and Duluth, and an application has been received from Winona, which probably will be granted.

---

### LOCUM TENENCY WANTED

Having sold my practice, I wish locum tenens work anywhere. Ten years' general practice, city and country. Address 337, care of this office.

### PRACTICE FOR SALE

Medical and surgical practice in one of best small cities in state; R. R. center. All modern city conveniences; good hospitals; competition easy; nationality, while mixed, is mostly American. Excellent chance to do surgery. Will sell for cash only. Address 336, care of this office.



## PRACTICE WANTED

I want to buy a practice in town of over 1,000, where there is a hospital or good opening for one. Want a practice suitable for two in partnership. Write with all details to Dr. L. A. Davis, Dalton, Minn.

## LOCATION DESIRED

By a physician in Minneapolis or St. Paul. Prefer assistantship with an established physician. Will take postgraduate work first. Address 326, care of this office.

## LOCATION OFFERED

A fine opening for a doctor, particularly if Norwegian, in a beautiful Minnesota city of about 3,000, free to the purchaser of my modern home on a large corner lot in the center of the city. Good schools and churches. Address 316, care of this office.

## X-RAY MACHINE FOR SALE

Static x-ray machine; Nelson model T-H. Sixteen plate. Needs a few new plates, otherwise in working order; with hand power, two tubes, tubestand, electrodes, platform, etc. Price \$40, cost \$400. Address Box 117, Grey Eagle, Minn.

## PRACTICE FOR SALE

Eastern South Dakota. Practically unopposed practice in town of 600; one small town tributary; located on two railroads; easy terms; paying business from the start; mixed population; must be seen to be appreciated. Address 328, care of this office.

## PRACTICE FOR SALE

Four thousand dollar unopposed practice for sale. Village of 200. Good country and good roads. Price \$350; including some equipment, drugs and static machine. Office and residence can be rented or bought on very easy terms. Must be taken at once. Address 335, care of this office.

## HOMESTEAD FOR SALE

160 acres: Homestead, Minnesota. No residence or improvements required. Good land. Near market. Just the thing for a doctor to get in his homestead right before too late. \$500 includes locating fee, delinquent taxes and Government price. American Investment Co., Box 303, Fargo, N. D.

## PRACTICE FOR SALE

Southern Minnesota general practice of \$4,000. Have been here 10 years, wish to specialize. No competition. Scandinavian speaking doctor would do well from start. Drug stock \$4,000, optional. If you are not afraid of hard work and can invest \$1,500 in office-residence combination, address 339, care this office.

## PRACTICE FOR SALE

A very good practice in a town of 800, situated 175 miles west of the Twin Cities on a main line. A good income is assured from the start. There is a fine opening for a hospital. Will sell for value of office fixtures, x-ray machine, etc. payments on easy terms. Am leaving to do postgraduate work. Address 338, care of this office.

## PRACTICE WANTED

Practice in a small city or modern town in Minnesota by a Minnesota graduate, seven years in general practice and surgery. Strictly ethical and temperate. Will consider partnership or assistantship. Address 340, care of this office.

## LOCATION WANTED

An experienced and ethical physician and surgeon, energetic, good address, no addictions, desires to purchase interest in an established and paying hospital, sanitarium, or private practice, in or near the Twin Cities. Must be a clean, legitimate proposition. Would consider industrial or R. R. appointment. Address 330, care of this office.

## PRACTICE FOR SALE

Southeastern South Dakota. Unopposed practice in a live town with large territory; well established; \$3,500 yearly; appointments; collections excellent. Office building, furniture and instruments, \$600 to \$800, depending on how many of the instruments are wanted. Only a small amount of cash necessary; liberal terms. Act quickly. Address 334, care of this office.

## PRACTICE FOR SALE

One of the best country practices in Minnesota for sale cheap. Located in a town of 400 population, thirty miles from Minneapolis, on the Great Northern railway; thickly settled farming community of mixed population. No competition, large territory, ten miles all directions. Work from the start. Residence and office optional. Price for office fixtures and drugs, \$400. Best reasons for selling. Address 320, care of this office.

## PRACTICE FOR SALE

Unopposed practice and small drug store stock. Purchase of building optional. Practice of \$2,000 per year goes with the drug stock, which invoices about \$600. Large territory, settling up fast and in the best part of north-central Minnesota. Good roads, beautiful lakes and the best of hunting and fishing. Excellent place for young physician. Money from start. Practice should nearly double in 3 years. Address 331, care of this office.

## LOCATION FOR SANITARIUM FOR SALE

Excellent location in Ortonville, Minn., near Bigstone Lake (32 miles long), a fine 10-room house, summer resort town. Sailing, boating, fine fishing; lake Government stocked. Fine large spring and finest spring water, containing large amount of iron. Town is located on main line of Milwaukee on branch line. House completely modern. Bathing beach, 100 foot frontage on lake. Sandy shore. Price \$10,000. Might consider part trade. American Investment Co., Box 303, Fargo, N. D.

## DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

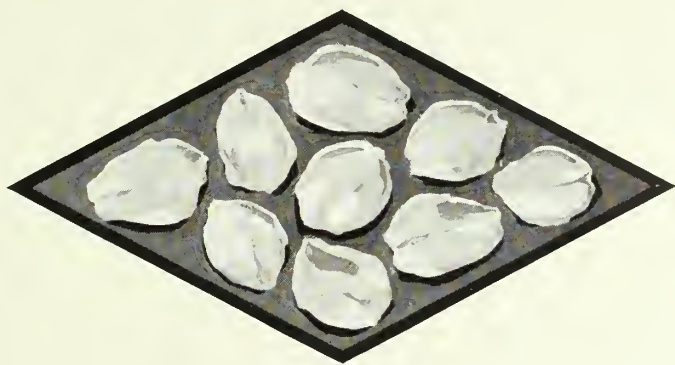
CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	1														1	
Albert Lea	4,500	6,192	7														2	
Alexandria	3,681	3,001	2															
Anoka	3,769	3,972	1															
Austin	5,474	6,960	9			1												1
Barnesville	1,326	1,353	0															
Bemidji	2,183	5,099	8	2		3												
Benson	1,525	1,677	3					2										1
Blue Earth	2,900	2,319	2			1												
Brainerd	7,524	8,526	8			3												
Breckenridge	1,282	1,840	1															
Canby	1,100	1,528	2															
Cannon Falls	1,239	1,385	3															
Chaska	2,165	2,050	3															
Chatfield	1,426	1,226	3															
Cloquet	3,074	7,031	4			1									1			
Crookston	5,359	7,559	8	1	1	2		2								1		1
Dawson	962	1,318	5	1														
Detroit	2,060	2,807	4														1	
Duluth	52,968	78,466	94	10	2	15	2	0	2	0	1	0	0	2	2	3	0	6
East Grand Forks	2,077	2,533	2															
Ely	3,572	3,572	6			1											1	
Evaleth	2,752	7,036	5			3								1	1			
Fairmont	3,440	2,958	3															
Faribault	7,868	9,001	13		1											1		
Fergus Falls	6,072	6,887	7		1										1			
Glencoe	1,788	1,788	6													1		
Glenwood	1,116	2,161	3	1														
Granite Falls	1,454	1,454	4															
Hastings	3,811	3,983	8			3												
Hutchinson	2,495	2,368	2												1			
International Falls		1,487	3	1		1												
Jordan	1,270	1,151	1													1		
Lake City	3,142	3,142	0															
Le Sueur	1,937	1,755	5			1												
Little Falls	5,774	6,078	8			2									1			
Luverne	2,223	2,540	2			1												1
Madison	1,336	1,811	4														1	
Mankato	10,559	10,365	24	1		2	1									1		
Marshall	2,088	2,152	2													1		1
Melrose	2,591	2,591	2													1		
Minneapolis	202,718	301,408	451	39	12	77	7	1	5	0	0	0	0	0	5	31	2	22
Montevideo	2,146	3,056	6						1									
Montgomery	979	1,267	1															
Moorhead	3,730	4,840	4			1												
Morris	1,934	1,685	1															
New Prague	1,228	1,554	2			1												
New Ulm	5,403	5,648	17					1								1		1
Northfield	3,210	3,216	9		1	1												
Ortonville	1,247	1,774	3	1												1		
Owatonna	5,561	5,654	8			1												1
Pipestone	2,536	2,475	4	1		1												
Red Lake Falls	1,666	1,666	0															
Red Wing	7,525	9,048	10	1												1		
Redwood Falls	1,661	1,666	3															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	48	2	2	4					1					9		1
Rushford	1,100	1,011	2			1												
St. Charles	1,304	1,159	2															1
St. Cloud	8,663	10,600	16	1		3									1			
St. James	2,102	2,102	3	1														
St. Paul	163,632	214,744	256	23	7	28	5	1	0	0	1	0	0	0	6	16	1	14
St. Peter	4,302	4,176	3															
Sauk Centre	2,154	2,154	9			3												
Shakopee	2,046	2,302	4	1												1		
Sleepy Eye	2,046	2,247	4			1												
South St. Paul	2,322	4,510	5								1							
Staples	1,504	2,558	2															
Stillwater	12,318	10,198	10		1	2										1		
Thief River Falls	1,819	3,174	8		2	2											1	
Tower	1,111	1,111	1															
Tracy	1,911	1,826	2															
Two Harbors	3,278	4,990	6			2									2			
Virginia	2,962	10,473	20	1		11									1	1		3
Wabasha	2,622	2,622	5	1														
Warren	1,276	1,613	2			1												
Waseca	3,103	3,054	7			1										1		1
Waterville	1,260	1,273	2			1												
West St. Paul	1,830	2,660	1													1		
Willmar	3,409	4,135	6			1												
Winona	19,714	18,583	40	2		5		1								2		1
Winthrop	813	1,043	0															
Worthington	2,386	2,386	4			3												

REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	2															
Aitkin	1,719	1,633	2			1												
Akeley			0															
Appleton	1,184	1,221	1														1	
Belle Plaine	1,121	1,204	3														1	
Blwabik		1,690	1															1
Bovey		1,377	0															
Browns Valley	721	1,058	1															
Buffalo	1,040	1,227	1															
Caledonia	1,175	1,372	2															
Cass Lake	546	2,011	3															
Chisholm		7,684	17			8					2							2
Coleraine		1,613	3	1														
Delano	967	1,031	2			1												
Farmington	733	1,024	*															
Fosston	864	1,055	4	1														
Frazee	1,000	1,645	1															
Grand Rapids	1,428	2,239	1															
Hibbing	2,481	8,832	13			5	1									1		1
Jackson	1,756	1,907	3														1	1
Janesville	1,254	1,173	1															
Kenyon	1,202	1,237	0			2												
Lake Crystal	1,215	1,038	6			1										1		
Litchfield	2,280	2,333	5			1												
Long Prairie	1,385	1,250	2															
Madelia	1,272	1,273	1															
Milaca	1,204	1,102	0															
Mountain Lake	959	1,081	1															
Nashwauk		2,080	2			1												
North Mankato	939	1,279	3													1		
North St. Paul	1,110	1,404	1															
Osakis	917	1,013	1			1												
Park Rapids	1,313	1,850	3			1												
Pelican Rapids	1,033	1,019	0															
Perham	1,182	1,376	2															
Pine City	993	1,258	1	1														
Plainview	1,038	1,175	2															1
Preston	1,278	1,193	1															1
Princeton	1,319	1,555	4															
St. Louis Park	1,325	1,743	5	1		2												
Sandstone	1,189	1,818	2			1												
Sauk Rapids	1,391	1,745	4			1												
South Stillwater	1,422	1,343	3			2												
Springfield	1,511	1,482	4			1					1							
Spring Valley	1,770	1,817	2			1												
Wadena	1,520	1,820	2															
Wells	2,017	1,755	3			1												
West Minneapolis	2,250	3,022	3			1	1											
Wheaton	1,132	1,300	1															
White Bear Lake	1,288	1,505	3	1													1	
Windom	1,944	1,749	*															
Winnebago City	1,816	2,555	4															
Zumbrota	1,119	1,138	4			1												
STATE INSTITUTIONS																		
Anoka, Asylum			4			1												
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			11	2		1										1		
Fergus Falls, Hospital for Insane			15	2		1												
Hastings, Asylum			4	1														
Minneapolis, Soldiers' Home			2															
Owatonna, School for Dependents			2			1												
Red Wing, State Training School			0															
Rochester, Hospital for Insane			25	3		1											1	
Sauk Centre, Home School for Girls			0															
St. Peter Hospital for Insane			14	2		4												
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			1190	73	15	172	3	9	14	0	20	2	0	3	25	63	1	39
Total for state			2664	179	44	406	20	17	22	0	24	3	0	7	49	152	6	105

\*No report received. REGISTRAR not doing his duty.  
148 stillbirths not included in above totals.





# Oat Food

## At Its Best


Oat flakes are better than oatmeal—more luscious, more inviting.

Big flakes are better than small flakes. Plump, full-grown grains have the richest flavor. Puny grains are underfed.

Quaker Oats is always flaked from these queen grains only. We get but ten pounds from a bushel. When this extra quality costs no extra price, is it not advisable for all?

# Quaker Oats

*Queen Grains Flaked*

 Scotch oats used to be the standard. Today Quaker Oats is the favorite. Even in England it outsells any other brand. So it is wherever there are oat lovers.


It will be your favorite, also, when you know it.

*Regular package 10c*  
*Except in Far West and South*

# The Quaker Oats Company

Chicago

(1260)

 Tested  
professionally—  
Approved professionally.  
Exceptionally  
Palatable,  
Digestible, Dependable.

Physicians have been able to prescribe to advantage

## Hydroleine

in cases in which cod-liver oil is indicated. Hydroleine is pure Norwegian cod-liver oil emulsified in a manner which makes it extremely utilizable. It is without medicinal admixture. Sold by druggists.

THE CHARLES N. CRITTENTON CO.  
115 Fulton Street, New York  
Sample will be sent to physicians on request.

## Live virulent organisms retard immunization.

Dead or devitalized organisms rapidly produce immune bodies. PROPHYLACTIC IMMUNIZATION has demonstrated this fact; Therapeutic Inoculation is doing so in ACUTE and CHRONIC INFECTIONS. Greater and more rapid immunity can be established with a vaccine than from an infection.

If you have a case of ACUTE INFECTION give it an injection of VACCINE in some healthy tissue which will be stimulated without deleterious results to antibody production.

We have had extensive experience with severe cases and may be of service to you.

**G. H. Sherman, M. D.**

*Manufacturer of Bacterial Vaccines*

3334-36 E. Jefferson Avenue, Detroit  
LITERATURE ON REQUEST

# AUTOGENOUS VACCINES

in the treatment of

Pyorrhoea	Chronic Bronchitis
Asthma	Endocarditis
Sinus Infections	Otitis Media
Throat Infections	Skin Infections
Bladder and Urethral Infections	

The *exciting organism* identified and isolated. Cultures made aerobically and anaerobically. Vaccine put up in a single 20 c. c. container, or in ampules in graduated doses.

Culture media with directions for collecting specimens sent gratis upon request. The fee is..... **\$5.00**

## WASSERMANN TEST . \$5.00

We do the classical test. Any of the various modifications made upon request without additional charge.

## Complement Fixation Test for Gonorrhea . . \$5.00

We use a polyvalent antigen.

## Examination of Pathological Tissue . . \$5.00

Slides of sections sent upon request.

*Sterile Containers with Instructions  
Sent Gratis Upon Request*

## National Pathological Laboratory

(INCORPORATED)

Chicago,  
5 South Wabash Ave.

New York,  
18 East 41st Street

## PUBLISHER'S DEPARTMENT

### THE MINNESOTA SANITARIUM

Dr. Leo M. Crafts, who is the Medical Director of the above sanitarium, should be a sufficient guarantee that all patients will receive the very best care and attention at this home-like hospital, which makes a specialty of mild mental diseases and alcoholic and drug addictions. Full information will be promptly sent by addressing the Superintendent, G. B. McDaniels, 1926 Fifth Ave. South, Minneapolis.

### CHIPPEWA WATER

The Chippewa Water is brought into the Twin Cities from Wisconsin in the company's own porcelain lined tanks, and then bottled by machinery, thus reaching the family table absolutely clean and sanitary.

No lake or river water, natural or purified, can compare with Chippewa. Physicians strongly recommend its use at all seasons, for it is free from any bacterial contamination. The prices are very reasonable and delivery will be promptly and courteously given by addressing the Chippewa Springs Corporation, 177 No. Colfax Ave., Minneapolis.

### CHICAGO GREAT WESTERN RAILWAY

For the American Medical Association meeting, which will be held at Detroit, Mich., June 12 to 16, the Great Western Road will send out from the Twin Cities one of its superbly equipped trains for the comfort of the physicians of the Northwest. All tickets from the Twin Cities to Detroit are good via Rochester, where you can spend a day at the Mayo Clinic if you desire, then reaching Chicago in ample time to make connections for Detroit. For any information in regard to this trip, address C. D. Fisher, A. G. P. A., 400 Nicollet Ave., Minneapolis.

### STILL ROCK SPA

This sanitarium, located at Waukesha, Wis., was established for the exclusive treatment of diabetes and Bright's disease, and it has made a great success as Dr. A. J. Hodgson, the Physician in Chief, is a recognized authority on these special diseases. The hospital has about 100 well arranged rooms, with very pleasant grounds, and the Doctor provides all the comforts of the highest priced hotels and sanitariums. He is giving the best of satisfaction to all patients who have been under his charge. Send for one of their booklets.

### ASK FOR THIS BOOK

The Minneapolis General Electric Co. will mail free of charge to any reader of this journal, a beautiful new 4 page booklet containing over 40 photographs showing the modern utility properties back of an investment in the Northern States Power Company.

The investments offered for sale by this company are highly endorsed by many of our leading bankers and merchants. The business has shown a steady increase each year, and the preferred stock has paid a 7 per cent annual dividend for the past seven years. Stock is being sold to customers to further the plan of a wide

distribution of the ownership of the corporation in the communities which it serves.

Mr. R. F. Pack, general manager of the company, will furnish full information to all physicians who desire a good safe investment for their savings.

### GAS IN THE STOMACH

An excess of gas in the stomach and intestines is a source of frequent discomfort, yet in normal amount, properly distributed, it is normal and inoffensive as an element in the body metabolism. Gases play an important part in making breadstuffs healthful and easily digestible. Yeast in bread, and baking powder in biscuits and cakes effect a leavening which makes the food more palatable and more easily accessible to the action of the digestive juices. The proper distribution of the gas throughout the food is of the greatest importance. Large holes in the cake aid little in real leavening. Myriads of tiny holes, each enclosed by its thin walls may occupy less space than one large bubble, but they will render all the food thus divided into small cells dainty and easily digestible. These small bubbles of gas, thus surrounded, make food with a "fine texture." The gas is properly distributed to do its work. Large bubbles and big holes in biscuit and cake add almost nothing to the ease with which they may be digested.

Baking powder must not only be thoroughly mixed with the flour and other ingredients but must be carefully and uniformly prepared if fine texture in the food is secured.

Some baking powders are well known for the uniformly good results obtained and the fine, even texture of the finished food. Manufactured only by those exercising the most careful chemical and mechanical control in all the steps of the work. No baking powder is better known for the excellent results, fineness and evenness of texture and for the care exercised in the chemical and mechanical control of its manufacture than is Calumet Baking Powder.

Special care should be exercised in selecting such a powder in preparing food for the patient, and good judgment will lead to the same care in making a selection for those in perfect health.

### NO SHORTAGE OF PEPTO-MANGAN (GUDE)

It affords us pleasure to call special attention to the advertisement of Pepto-Mangan in this issue.

It will be noted that plentiful supplies of this standard hematinic are again available, after a brief shortage of stock, due to unexpected delays in the fitting up of a new and thoroughly modern laboratory for its manufacture in New York City.

Pepto-Mangan (Gude) is now and will continue to be owned, controlled and manufactured in the United States, and will be supplied, exactly the same as heretofore, in unlimited quantities and at the usual price.

### AN IMPORTANT SILVER GERMICIDE

There are numerous silver salts on the market. One of the most efficacious of these is believed to be the proteid-silver compound manufactured by Parke, Davis & Co. under the name of Silvol. This product occurs in scale form, has a dark lustrous appearance, and con-



tains about 20 per cent of metallic silver. Silvol is slightly hygroscopic, consequently is readily soluble in water. Aqueous solutions of any strength desired may be prepared from Silvol—solutions having this important advantage: they are not precipitated by proteids or alkalis or any of the reagents that commonly affect other silver compounds in solution. Moreover, Silvol solutions do not coagulate albumin or precipitate the chlorides when applied to living tissue.

The use of Silvol is indicated in inflammatory affections of mucous membranes generally. It may be used locally in solutions as strong as 40 per cent without producing pain or irritation. In acute gonorrhea, as an

abortive measure, a 20 per cent solution may be injected every three hours, while in the routine treatment the injection of a 5 per cent solution three times a day is recommended.

Silvol penetrates tissue and destroys pathogenic bacteria. It is non-toxic. The product is available in two forms: powder (ounce bottles) and capsules (6-grain), bottles of 50. The contents of two capsules make one-fourth ounce of a 10 per cent solution. For application to regions where the use of an aqueous antiseptic solution is impracticable, Silvol Ointment (5 per cent) has been devised. This ointment is marketed in collapsible tubes (two sizes) with elongated nozzle.

## THE STORM BINDER AND ABDOMINAL SUPPORTER

PATENTED



For Men, Women, Children and Babies

Modifications for Hernia, Relaxed Sacro-iliac Articulations, Floating Kidney, High and Low Operations, Ptosis, Pregnancy,  
:: Pertussis, Obesity, Etc. ::

*Send for new folder and testimonials of physicians. General mail orders filled at Philadelphia only—within twenty-four hours.*

KATHERINE L. STORM, M.D., 1541 Diamond Street

Philadelphia

## DIARSENOL 0.6

Tested in the Laboratories of the University of Toronto by Professor J. J. MacKenzie, Department of Pathology and Dr. A. McPhedran, Professor of Medicine in the University of Toronto.

I will fill Physicians' orders for Diarsenol until Salvarsen is again placed upon the market.

PRICE . . . \$4.50 per ampule

**I. C. BRYANT**

Telephone Kenwood 3674

2609 Hennepin Ave.

Minneapolis, Minn.

**ERGOAPIOL (Smith)**

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## CLINICAL OBSERVATIONS AND DEDUCTIONS OF SOME OBSCURE INFECTIONS\*

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It is the object of this paper to emphasize the infectious origin of certain common acute, sub-acute, and chronic diseases, and their etiological relation to some definite primary focus of infection, by calling attention to the broad application of this fact, as observed in daily practice, and by urging a more definite and complete treatment of the primary condition to which these secondary manifestations are due.

During recent years great advances have been made by clinicians, collaborating with their pathologists and bacteriologists, in adding to the list of known causes of previously obscure conditions. Especially noteworthy was the clearing up of that hitherto indefinite but important clinical group, the so-called "rheumatisms," which we now know are always a secondary form of arthritis, consequent upon some distant primary infection.

Old theories were overthrown by these newer and more exact pathological findings as determined by clinical and laboratory observation; and the consequent change of therapy, resulting in a more scientific treatment, where previously an empirical one was employed, brought about brilliant results. Sixteen years ago Dr. Isaac Adler, of New York, published his observations, that many cases of acute and subacute polyarthritis and myositis were due to infected tonsils, and that these secondary lesions could be prevented

or cured by prompt removal of this definite primary focus.

The whole pathology of this class of diseases has been rewritten since then, which resulted in most excellent therapeutic results.

Soon after the relation of these foci of infection to the arthritides became definitely established, it was further observed that this primary focus bears a direct relation to other related conditions, such as endocarditis, pericarditis, pleuritis, and general septicemia. Then came the knowledge of other primary foci of infection and the bacteriological differentiation of the infections; and we learned that some were streptococcic, others pneumococcic or gonococcic, etc., and that various strains of these were factors in different cases. We further learned that a definite time transpired between the primary acute infection and its secondary manifestation, depending upon the biological character of the invading germ and its relation to the bodily resistance of the invaded host. The latter qualification was especially noted in the acute secondary conditions.

Bacteriologists added their share to this definite knowledge, by isolating certain definite organisms, as associated with certain definite pathological conditions. Thus, Rosenow isolated the streptococcus viridans, and showed its relation to certain forms of arthritis, endocarditis, and pericarditis; Smith and Barret showed the relation of the entameba to certain cases of pyorrhea and colitis, etc. Since then a host of clinical observers and laboratory workers have established

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a more definite pathology by adding to the list of the arthritides and their complications other clinical diseases, for which a primary focus of infection has been established.

Thus we have most prominently the various forms of acute, subacute, and chronic arthritis; endocarditis and pericarditis; nephritis and pyelitis; cholecystitis; pancreatitis; appendicitis; colitis; gastric and duodenal ulcer; chorea; bronchial asthma; and general septicemia. In all of these we can frequently, if not always, establish or suspect a definite primary source of bacterial infection.

The primary focus of infection in these and other diseases is usually found in one of the following portals of entry: tonsils; teeth and periodontal tissues; nasal fossæ; middle ear; urethra, prostate and seminal vesicles; uterus and Fallopian tubes; and perirectal tissues.

This relation of primary focus to secondary disease is now well known pathologically, but its clinical application seems to be woefully neglected.

The writer wishes to emphasize in this brief paper that in our daily clinical work we must be ever on the lookout for these primary causes of the diseases which we are called upon to treat, and that, unless we apply in our methods of treatment this pathological fact, our cases will not be cured completely, or will recur in the same or other organs, or will not be prevented where such prevention is possible by an early elimination of the dangerous portal of entry, or of its dangerous inhabitants. Besides treating the gross lesions for which the patient comes to us, we must be on the alert for these foci, in order to understand the disease, eradicate it thoroughly, and prevent its recurrence. It will give us the cue to the medical or surgical treatment of the disease; for, if the invading enemy and his habitat are known, then it is easier and more certain to eliminate him from the battlefield.

When a patient complains of an indefinite, persistent, or recurring pain or disability of a joint, or muscle, or nerve, or organ, we must not be content to prescribe for, or treat surgically, merely the gross local condition, but we must hunt for the primary entry of the invading germ, and eradicate it. The surgeon should not be satisfied with merely draining or removing an infected gall-bladder, or removing a diseased appendix, or short-circuiting the alimentary canal, or arresting an ulcer of the stomach or duodenum, but he should also look for the primary source of

the disease, and treat that also, to prevent its recurrence in the same or another organ of the body. An effort should be made to establish the pathological course of the disease from its beginning to its present status, in order to be able to apply a definite scientific cure. This is sometimes very simple, in other cases almost or quite impossible; but the attempt should be made, and it is surprising how often one will be rewarded by definite results. There is hardly a case of an infected gall-bladder, or appendix, or kidney in which we cannot find some sign or history of the primary cause; and, if organic changes have not been too far established, a return to health can be brought about in many an otherwise hopeless case.

It is poor treatment which aims at merely removing or empirically treating a diseased kidney, or gall-bladder, or gastro-intestinal ulcer, if the primary infection in the tonsils, or in suppurating gums, or an infected lymph-gland, or prostate, or seminal vesicle, or whatnot, is not sought for and eliminated, so that the waning powers of resistance of nature against that particular form of infection can be made to recuperate, and recurrence prevented. From birth to death, the human body is fighting invading germs. The entry of destructive germs is nature's way of destroying organic matter, including the human body. If we keep the fighting power of the body in serviceable condition by good hygiene, etc., we fortify it against this destruction. By also preventing the invading germs from entry, or eliminating them with their disease foci, when entered, we complete the purpose of the healing art. This broad principle is applied when we add to our treatment of the gross disease, for which the patient comes to us, a vigorous search for the etiology and the complete pathological process of the disease under treatment. We thus fortify the defenses, and we eliminate the foe. Clinically, we have observed this in thousands of cases. For instance, a young man who is recovering from an acute respiratory infection, is taken suddenly ill with an acute polyarticular arthritis; an acute endocarditis follows, and then an acute septic nephritis. In tracing the history and looking for signs, infected tonsils are found. The pathological history is complete. The primary source of infection is in the tonsils. A so-called "cold," in reality, an acute exacerbation of the infection, spreading over the upper respiratory tract, is established because of broken down barriers of resistance. The infection enters the



circulation, and various joints are involved. A septic nephritis follows. The empirical use of the salicylates, with rest, local treatment, diet, etc., brings about a temporary abatement of the general infection. Recurrences follow, until at an opportune time the diseased tonsils are removed. Complete cure follows. Another case of a large perinephritic abscess is found to have followed an extensive pyogenic infection of the gums. Drainage of the abscess is done; but the mouth-infection must be eradicated, or other evil results will follow.

Surgery would have done but half its work if it had not eliminated also the primary focus of infection at the proper time. We say "proper time" advisedly, for it is usually unwise to attack such a primary focus of infection during the acute stage of the secondary manifestation, because the fighting powers of the body are already overtaxed without throwing a new lot of vicious organisms into the blood, as is done by local interference. It should be kept in mind, and attacked at the first favorable opportunity.

Nature's way of fighting infections is by developing an antitoxin, and by eventually draining the local foci, if her powers of defense last long enough. We should imitate nature by using such methods as bring about a re-inforcement of her defending powers, and at the same time establish drainage for the elimination of the disease focus. It has been said that nature is a good physician, but a poor surgeon. The broad surgical principle of drainage is applicable in these cases more emphatically than in any other. We must force the foe who is invading the body from the trenches in which he has established himself.

In many chronic cases where the fighting power of nature has been brought to almost the point of exhaustion, even removal of the primary focus of infection will not be sufficient to allow the body to return to normal. In such cases, besides removing or correcting the primary and secondary conditions, it may be necessary to coax her into furnishing more resistance and counter-attack by developing artificially a vaccine from the organisms found in the primary focus of infection. In the secondary lesion the living germs are usually difficult or impossible to cultivate, whereas they seem to retain their vitality and virility for years in the primary focus. For this reason it is wise that, whenever a known or suspected primary focus is attacked by us, we should at the same time prepare ourselves by having the bacteriologist grow a culture, and make a vac-

cine for possible eventual use. If it is not done at the time when this focus is first disturbed, it is usually impossible to do so later, because of secondary local infection.

The germs which are usually found in these foci are the various strains of streptococci, especially the viridans, the pneumococcus, the gonococcus, and certain forms of entamebæ; though other organisms may be found in pure or mixed culture.

The rôle played by these obscure sources of infection in the different forms of arthritis, is well known. The related lesions, such as endocarditis and pericarditis, are also generally acknowledged in their relation to such foci. There is an increasing number of diseased conditions, however, as observed by clinical experience, which should be added to this list.

Frequently we find a myositis of the lumbar, or cervical, or shoulder, or intercostal muscles, or a brachial, sciatic, or intercostal neuritis, which yields promptly to the removal of a tonsillar infection or infected paradental tissues.

The rôle played by certain forms of entamebæ in pyorrhea and colitis, is an interesting one, and a very prevalent one. Clinically, we frequently find patients who suffer from irregular, but persistent, colicky pains in the abdomen, with occasional slight or severe attacks of diarrhea, simulating the symptoms which we find in peritoneal adhesions around the colon. The stools will sometimes contain entamebæ, at other times they cannot be found. The patient has a pyorrhea in a moderate or severe form. Prompt cure follows the use of emetine injections, together with local dental treatment to eliminate the primary focus as well as the secondary condition in the bowel wall. Treating the condition by laparotomy or bowel irrigations, is ineffective until the primary condition is removed. Of course, the local bowel condition requires such treatment as the organic changes or inflammatory or ulcerating condition indicate.

Especially interesting is the presence of the entameba in infected gums, in its etiological relation to brachial or sciatic neuritis, where prompt relief follows the use of emetine with local dental care, after all other remedies have failed. We have seen this marvelous result frequently.

We have observed a sciatica following a traumatic injury of the sacro-iliac joint, where permanent relief did not follow upon rest of the joint and extremity until the pyorrhea which was present in a mild form was corrected.

Referring to the dental care required, we must be sure that the dentist in question fully realizes this relation of local infection in the gums or teeth to secondary lesions. We find many dentists who are not sufficiently acquainted with the pathology of these conditions to give them the proper care.

It is not always the entameba that is the cause of infected teeth or gums; it may be a streptococcus or other organism, whose isolation can be effected only by careful bacteriological culture and identification, about which we find many dentists skeptical, yet the clinical results prove the correctness of this relation.

Chorea is in many ways similar to the so-called acute "rheumatisms" in its clinical history and complications. Acting on this fact, the writer has been able to get remarkable results in some of these cases by finding and eliminating a primary infectious focus, which has usually been found in the tonsils. Rest that is absolute, mental and physical; an icebag over the heart, which is frequently affected with an endocarditis; salicylates while the acute attack lasts; and eventually removal of the infecting focus, bring about splendid results. We believe that chorea is an acute infection in a body with an unstable nervous equilibrium, and that it should be treated like a secondary infection.

Some cases of bronchial asthma, where a spasmodic condition of the bronchi exists, with a subacute or chronic bronchitis, have yielded splendid results to the use of mixed autogenous or stock vaccines to combat the infection present. The primary source of infection seems in these cases to be in the bronchi themselves. There is a tendency to recurrence, however, in these cases, after several months or years.

Sometimes a dermatitis or urticaria has been found to be associated with a mild hidden infection, and has yielded promptly to treatment of this infection. We have found a mild pyelitis or pyelonephritis present, treatment of which alone cleared up the skin condition.

The relation of infected tonsils to scarlet fever is well known, and it behooves us to look after the tonsils at the proper time in many of these cases.

An important phase of this subject is to be found in certain cases of nephritis, which have been found to have followed some local infection in a distant part of the body, where recovery of the signs and symptoms of the nephritis has followed the elimination of the infectious focus.

The excretion of bacteria by the urine in infectious diseases, is a common observation. With overtaxed kidneys in the presence of a lessened resistance, the secondary infectious nephritis resulting is easily explained.

In the routine examination of urine which is made in all surgical cases, we frequently find signs of nephritis in unsuspected cases, in otherwise functionally capable kidneys. After the operation, when the disease requiring the operation has been eliminated, the urinary signs clear up and remain so. Likewise in cases where the urine has been found normal before operation, we may find signs of marked nephritis, with albumin, casts, pus and blood-cells, and many bacteria for a day or two following the operation, which condition promptly clears up without other treatment. This condition may be due to the chemical irritation of the ether, but we believe it is due to the increased elimination through the kidneys, and the consequent irritation, by bacterial toxins, resulting from operative interference.

In like manner we find certain cases of mild nephritis to be due to the irritation from a distant infection focus, which chronic irritation may lead to a permanent organic change in the kidneys, if unobserved and untreated.

That pancreatitis is the secondary result of some primary infection, seems to be the consensus of opinion. The treatment, besides dietetic, to prevent irritation and increased work of this gland, consists in drainage of the gall-bladder, and drainage or removal of other possible foci of infection.

In the clinical study of primary infection in its relation to secondary disease, an interesting observation was made by the writer. Many of these cases of chronic infection showed signs of enlarged thyroid,—often a soft uniform enlargement, which appears to be due to excessive functional activity of the gland; sometimes organic changes are present, such as infiltration and cystic and nodular goiter. It seems that the thyroid gland has, as one of its functions, some protective action on the body economy in the presence of infections, or of some strenuous physiological process.

We know that frequently the thyroid gland enlarges at puberty, and during menstruation and pregnancy. Likewise in some infections in distant parts of the body, and especially when there is present also an infectious nephritis, have we noted such enlargement, and recession to



normal after the elimination of the infectious condition. For instance, a girl of twenty was observed, who came for advice because of an increasing dyspnea, apparently due to an enlarged thyroid gland. This had been so marked and persistent that we thought it advisable to do a partial thyroidectomy. While making the preliminary examination, two things were noted: there was found an enlarged cervical gland in the neck, and the urinary examination showed albumin and casts. The history revealed that the patient had had a chronic tonsillar infection previous to four years before the present examination, with enlarged cervical glands on one side. The tonsils were removed then (four years ago), but the glandular enlargement persisted in a moderate form. In analyzing the case we concluded that the glandular mass was harboring bacteria, which originally entered through the diseased tonsils, and which caused the toxic bacterial nephritis, and the accompanying progressive thyroid enlargement. Removal of this cervical gland mass, which proved to contain pus, was followed by a retrogression of the goiter, and eventually a clearing up of the kidney condition. We had here a chronic form of infection, harbored in the cervical gland, and also a secondary nephritis, and probably a physiological hypertrophy of the thyroid gland.

This apparent protective power of the thyroid is shown further, in the experience of surgeons, that cases which require surgical interference, when at the same time signs of nephritis are found, will often show a prompt improvement of the signs of kidney disease after the administration of thyroid extract, showing the beneficial, protective and curative action of the thyroid under some conditions.

In conclusion, besides reiterating the well known fact of the frequent relation of secondary diseases to some primary infection focus, it is the object of these remarks to emphasize the broad application of this fact in every-day practice, and to urge that in all cases coming for medical or surgical treatment we be on the lookout for these primary conditions, and correct them whenever possible, besides treating the gross secondary conditions for the relief of which the patient comes to us.

In this way we will further the complete cure of the disease, and prevent its recurrence in the same or other organs. We supplement empirical treatment of the body as a whole by a more rational and complete therapy.

## DISCUSSION

DR. HARRY P. RITCHIE (St. Paul): I find it is necessary to be quite brief in my discussion of this subject, as I have done no special work on these lines and have nothing to add except clinical experience that comes to every one of you gentlemen.

I think we are all anxious to prove and accept the theory of focal infections as explanatory of a great many of our chronic invalids. I remember as a student reading an article that suggested a relationship of myocarditis and cholecystitis, and it seemed to me with my then knowledge of medicine that this relationship was hardly possible. We are satisfied today, however, that a great many cases of myocarditis and arterial changes show unmistakable signs that are definitely related to a history of gall-bladder infection. We have cured the cyclic albuminurias by tonsillectomy. We are very well acquainted with so many of the acute inflammations that by a simple analysis of the symptoms we can often determine what the infective agent is. We also appreciate the great possibility of the metastatic effect of bacterial activity, and this point well explains a lot of our joint troubles and lumbagos. However, we want to guard against over-enthusiasm. In fact, all writers seem to think that there is an inclination to pull teeth and expect the patients to immediately recover, but with frequent disappointment in results. We must analyze each case with a view to determining as to whether there are definite and positive permanent changes in the joints or mouth or heart before we can make a definite promise to a patient that we will cure or better him by the removal of what seems to us the primary focus of infection.

DR. E. R. HARE (Minneapolis): I wish to say just a few words concerning the very excellent paper to which we have just listened, because I believe that its importance at the present time is very much underestimated by the profession at large. I believe we are coming, by the gradual accumulation of a large number of cases, to the standpoint that many of the troubles which we are called upon to treat are due to a focus of infection hidden somewhere in the body. These foci lie largely in the region of the mouth and the nasal fossæ or in the areas of the various fossæ of the skull.

I also agree with the remark of the last speaker with reference to promises made to a patient as to radical cure, and still we do see some very remarkable results following the removal of the foci of infection. I wish to call your attention to one specific case which illustrates what I mean, namely, three apical abscesses in the teeth of an individual who suffered from an arthritis of the middle joint of the middle finger and a mild endocarditis. With the discovery of these apical abscesses, with resection of the root of one tooth and the extraction of the other two roots, there followed almost as if by magic a complete disappearance of the arthritis, and also of the disturbance in the endocardium, and we remember that the patient had been suffering from a local condition, complaining continuously, and was in fact, a semi-invalid. Now he is entirely well, and has had no further recurrence of these disturbances.

When somebody says that this or that condition is due to a focal infection in some part of the body, and it does not make much difference what it is, I am led to believe it is true. The radiographs in a large number of individuals who are not suffering at all,



so far as a local condition of the teeth is concerned, will disclose anywhere from one to six apical abscesses present. These individuals suffer with conditions far remote from the teeth, and it is reasonable to suppose as a direct result of infection at the roots of the teeth, for with the removal of the teeth the conditions are cured without further treatment. This has happened not in one but in many cases, still I do not wish to be understood as saying that all the conditions we are called upon to treat are the result of focal infection.

DR. J. D. LEWIS (Minneapolis): From the viewpoint of the laryngologist I wish to mention a few factors which have probably been overlooked, particularly regarding the tonsil as the origin of focal infections. Many laryngologists now regard the tonsil as a modified lymph-gland, which is physiologic up to about the age of six, after that, as a pathologic structure, as there are no healthy tonsils after that age. Now, since so many diseases are air-borne, a great deal more importance is being attached to Waldeyer's ring, that is, the lymphoid ring of the pharynx, as the gateway of entrance. It is well known that bacteria will not pass through healthy epithelium; it must be impaired or diseased before organisms can enter the system by this route.

It is interesting to note the appearance of arthritic symptoms in cases of acute lacunar tonsillitis, which undoubtedly establishes some etiologic connection between these conditions; but, if one expects to cure cases of chronic arthritis by tonsillectomy, he will probably be very much disappointed. We perform a great many of these operations at the City Hospital, and have had discouraging results in the chronic cases. They have gone too far. We must not be misled by our smears and cultures from tonsils, for in the creases of these glands, in every healthy individual, you will find the streptococcus and pneumococcus. Just what biochemical changes cause these innocent saprophytes to assume a maleficence toward their hosts has not been satisfactorily explained. It is probably best accounted for by a lowering of resistive powers, locally and generally, but it would seem that the systemic factor is the important one which paves the way for the invasion of the system by pathogenic organisms.

DR. J. J. McGROARTY (Easton): I have just a word or two to say in regard to these infections. From my experience with infections of this kind, it is my earnest belief that acute endocarditis, acute rheumatism, and chorea are caused by a certain form of the same germ, or I may say a different strain of the same germ.

I have been very much interested in the question of immunity along this line, and I think we are just on the verge of a great change in the treatment of these infections. It is all right to talk about removing tonsils and abscessed teeth. That is the proper thing to do, but when you have a patient who is down sick with a high fever, and is very acutely ill, what are you going to do for that patient at that time? You cannot remove the tonsils or the decayed teeth; so, I believe, by making a blood culture and having an autogenous vaccine prepared therefrom, and injecting the same into the patient, we will be able to cure many cases.

I have tried this autogenous vaccine on five patients with acute endocarditis, with four recoveries. One of these cases, however, shows a heart lesion at the present time. The patient, a young girl of twelve years, was so ill that I despaired of her entirely. I tried everything

for eighteen days, until she was practically moribund, so much so that I did not think she would live over three or four days. I took blood from the arm, placed it on blood serum, had an autogenous vaccine made by Dr. Pratt, of Mankato, began the hypodermic injections, and after the second treatment she showed signs of improvement, and she gradually kept on improving with each successive injection, and today she is quite a strong, healthy girl.

Four weeks previous to this illness, this little girl had a severe attack of acute lacunar tonsillitis. I would suggest this one thing to you, gentlemen, as it has occurred to me,—namely, why can't we take a blood culture and have an autogenous vaccine prepared in many other diseases where the germs circulate in the blood, such as typhoid fever? I believe an autogenous vaccine would be indicated in cases of typhoid fever, certain forms of septicemia, etc.

The earlier an autogenous vaccine is given, the more successful will be your results.

DR. GEORGE A. EARL (St. Paul): I wish to discuss the remarks of the last speaker. If we have a patient, bed-ridden or not, suffering an infectious process from a focal point, such as tonsillitis or ulcerated tooth, the cause should be removed as soon as possible, and without waiting for subsidence of symptoms. This does not mean as soon as the tonsillitis develops and while it is in a real acute stage, because that might be dangerous. As a matter of fact the infectious or rheumatic process does not develop till some days after the onset of the tonsillitis or ulcerated tooth. By this time the patient's resistance has been developed, the acute local symptoms have subsided, and it is far safer to remove the focal point than subject the patient to the danger of continued infection. It is perfectly proper to give a vaccine, but the essential treatment is the removal of the cause whenever possible.

DR. J. C. BOEHM (St. Cloud): The tonsils seem to be condemned as the cause of arthritis, endocarditis, pericarditis, and a number of other "itises." But as a general practitioner, I find just as many cases of sore throat and tonsillitis without arthritis, and I have many cases under observation now where the arthritis can be brought on by eating something that is not suitable or appropriate for the stomach of that individual. If you will remember the physiology of digestion, the ingestion of a large amount of starchy food, bolted down, not giving it any opportunity to be digested in the mouth where it should be digested, throwing it into the stomach, and letting it rot in there—that in itself will produce arthritis, rheumatism, or whatever you may call it. I have had more cases of that kind than where I could trace them to tonsillitis or to a bad condition of the teeth.

DR. SOHMER (closing): Concerning the use of vaccines: I believe they are indicated in subacute and chronic infections, to stimulate the fighting forces of the body "after" the primary focus of infection has been removed, in individual cases.

One cannot "cure" an arthritis by merely removing the primary exciting cause, where organic changes have taken place in the involved joints. But by removing diseased tonsils, or draining diseased tooth-sockets, or eliminating the apparent cause of the individual case, one can often prevent the formation of such organic changes, inhibit the progress of the secondary conditions, and improve the acute manifestations of the same.

## RECENT ADVANCES IN THE THERAPY OF LUES\*

BY JOHN BUTLER, M. D.,  
MINNEAPOLIS

Syphilis was introduced to the European physicians over four hundred years ago, and from that time scientific medicine has availed itself of mercury and the iodides to control its ravages. However, only in the last few years has our knowledge of the nature and pathology of this disease improved so that we could substitute a really rational treatment for one empirical and uncertain,—a treatment the principal of which is no longer based on hypothesis and theoretical speculation, but upon positive objective facts. Indeed, we have seldom obtained in any branch of medicine, in so short a time, the eminent progress that we have experienced in the therapy of this disease.

It is also important and pleasing to know that this progress not yet fully exploited and realized, has not been made by mere chance, but is the fruit of the systematic employment of a great number of scientific discoveries in the field of etiology, experimental pathology and treatment. As you already know three great discoveries form the basis of modern syphilitic therapy:

1. The discovery of the *spirocheta pallida* by Schaudin and its cultivation with successful reinoculation by Noguchi, establishing the last of Koch's postulates, proved this organism as the causative factor of syphilis.

2. The complement-fixation test applied to syphilis by Wassermann, Neisser, Bruck, and Detre, which is perhaps the most important discovery, for it may be employed as a diagnostic test of syphilis and as a therapeutic index in its treatment.

3. The introduction of the synthetic arsenic compound (salvarsan, neosalvarsan and salvarsammatrium) into the treatment of lues by the late Professor Ehrlich.

When the *spirocheta pallida* infects the human organism it multiplies very rapidly, and in the course of time causes many pathological changes, so that the necessity of destroying it as soon as possible is clearly apparent.

This brings us to a consideration of an early diagnosis of the disease. In making a diagnosis of syphilis every symptom has a certain value; and, with the modern methods of microscopical and biological diagnosis added to our clinical

signs, an early and proper recognition of this disease is made, and treatment instituted at the earliest possible moment. On the other hand, whenever the clinical symptoms seem insufficient and are not corroborated by the microscope or Wassermann test, the diagnosis is uncertain, and it is an unforgivable mistake to begin treatment. When treatment is instituted, it is well to inform the patient that the disappearance of the lesion does not signify a cure, and that he must continue the treatment at intervals. He should be told that the blood must show a Wassermann negative for at least a year following the prescribed treatment before a cure is established. It is well for the physician to bear in mind that this cure depends largely on early and sufficient treatment, for, when the early treatment is insufficient, the Wassermann usually remains positive for a long time, and continues to remain so in many cases under heavy late treatment. Remember that a persistent positive Wassermann patient is always in line for relapses of skin, and, in many cases, for nervous and destructive lesions.

The value of the Wassermann reaction is important both in determining the efficacy of the treatment and in the diagnosis of obscure lesions; however, it has its limitations and reservations, for instance, we sometimes find cases with recognized tertiary lesions giving a negative reaction, which is no doubt occasioned by the fact that the spirochetes are in situations not adjacent to the circulation, and as a result the by-products of the parasite do not reach the blood-stream where they will stimulate the manufacture of sufficient antibodies to give a positive serum test.

Arsenic preparations have been used empirically for many years in the treatment of syphilis; but, prior to the introduction of the arsenic compound atoxyl, they derived their value more from their tonic effects than from any specific action.

In 1907, Uhlenhuth demonstrated the specific effect of atoxyl (one of the arylarsenates) in syphilis; but it was found to have very little power in preventing relapses or influencing the Wassermann reaction, and it had the very serious disadvantage that it seemed to have an affinity for the nerve tissue (neurotrophic), especially the optic nerve, occasionally causing blindness.

Other arsenic salts of a similar nature were

\*Read before the Stearns-Benton County Medical Society.



tried, and were found to possess the same dangerous properties as atoxyl. About this time Ehrlich was giving much attention to relapsing fever, which is a spirillar disease; and when Schaudin discovered that the *spirocheta pallida* was morphologically of the same class, Ehrlich turned his attention to an investigation of the chemical properties of atoxyl and like arsenic compounds, with the result that he synthesised an arsenic compound, which was No. 592 of a series of experiments, the soluble salt of this compound being No. 606, or salvarsan. In 606 he obtained a preparation that would destroy the parasite of syphilis without, at the same time, exerting severe ill effects on the host or body cells.

As salvarsan is an acid preparation and should be made slightly alkaline for intravenous injection, all of which requires great care and technic, Ehrlich further synthesised a condensation product of it which is known as No. 914, or neosalvarsan. He claims certain advantages for this preparation over No. 606, or old salvarsan, its chief recommendation to the profession being that it is directly soluble in water, giving a neutral solution, also that it is less toxic and quite as efficient. After having used both preparations at the Dispensary Clinic and in private practice, I should place their clinical effects as about equal. The luetic lesions disappear quite as quickly under neosalvarsan as with the old salvarsan with corresponding serological results.

At the present time a newer Ehrlich arsenic salt known as salvarsan natrium, or No. 1206, is being recommended by European syphilologists. Wechsellmann, of Berlin, and Dreyfus, of Frankfort, have used this newer preparation more than twelve thousand times, and they unhesitatingly recommend it in preference to salvarsan or neosalvarsan. The arsenic content of No. 1206 is the same as in neosalvarsan. They claim that it possesses all of the merits of the old salvarsan and neosalvarsan, both as to effectiveness and ease of administration, and that it is free from cumulative and hypersensitive effects. This new arsenic salt is not on the American market as yet, owing to the present European war.

In this paper I will speak only of neosalvarsan, it being understood that the old salvarsan possesses the same merits as neosalvarsan; indeed, many physicians give it in preference to the latter, claiming more efficient and lasting results for it.

Neosalvarsan should be dissolved in fresh

sterile distilled water, this water should not be warmer than 80° F., and the solution should be administered immediately after solution. It is a very unstable salt (much more so than salvarsan), and it oxidizes into poisonous products very quickly. It may be given intramuscularly or intravenously. For intramuscular injection the dose may be divided into two equal solutions of 10 c.c. each, and injected deep into the gluteal muscles on either side. If properly injected no induration or necrosis follows. For intravenous injection the powder should be dissolved in from 10 to 20 c.c. sterile distilled water, and injected with a 20 c.c. record syringe. The salvarsan vials should be carefully examined to see that there is no break in the glass. If the powder is grayish-white, it has become oxidized and should not be used.

The injection should be given by vein-puncture, and never by venesection, as there are many objections to making incisions in the arm of a syphilitic patient. In all cases injected there should be a preliminary examination and urinalysis, as well as a Wassermann test, except in fresh lues, as the strength of the positive reaction gives us an idea of the size and number of injections to be used. The injection may be made quite as well in the office as in the hospital, if we are certain that the patient will go directly home and to bed after the operation. More than one thousand injections have been given this way at the Dispensary Clinic without any more post-operative ill effects than those following injections in the hospital or home.

When Professor Ehrlich recommended salvarsan for syphilis he cautioned against its use in certain pathologic conditions. The following are the contra-indications:

1. Acute nephritis.
2. Severe non-compensated heart-lesions.
3. Gastric and duodenal ulcer.
4. Advanced degeneration of the nervous system.
5. Acute meningeal complications.

While we have not disregarded altogether the above contra-indications in the out-patient department, we have given it carefully in many of those conditions without ill effects, and in most instances with considerable benefit.

After an intravenous injection, salvarsan is eliminated in about four days. A second dose should not be given until the first is eliminated. After an intramuscular injection we find arsenic in the urine from ten to fifteen weeks later.



In regard to our mercurial treatment: we know that the insoluble salts are eliminated very slowly, while the soluble preparations are very quickly eliminated. We also know that the insoluble injections are far superior to the soluble. It is just possible that the intramuscular injections of salvarsan may be correspondingly more beneficial than the intravenous, and that the prolonged action of the arsenic may give better end-results.

I will now speak of the effect of neosalvarsan on the different syphilitic lesions. The primary lesion is quickly influenced; twenty-four hours after the injection intramuscularly or intravenously the living spirochetes cannot be demonstrated. They can be found five or six days following any mercurial treatment. If the chancre is not greatly indurated it disappears in about twelve days. The macular syphilide disappears in about eight days following a full intravenous injection. The maculopapular eruptions disappear more slowly, generally in three or four weeks. Mucous patches and moist papules are very quickly influenced, disappearing usually in two days. The syphilitic headaches for which we used to prescribe the iodides respond almost immediately to salvarsan treatment. The adenopathy disappears much more slowly, requiring several weeks after all other outward symptoms have vanished.

In the tertiary stage where we find gummata and ulcerative processes, salvarsan is of remarkable value, for here in many instances we find cases that do not respond to the mercury and iodides.

That syphilis of the special sense organs is greatly benefited all can attest. Syphilitic iritis is especially amenable to salvarsan; however, where the damage is irreparable, as in many syphilitic processes, salvarsan cannot be of any benefit, and a degenerated neuron cannot be regenerated by any specific treatment.

In the Wassermann test we have an excellent guide as to the amount of treatment necessary. During the incubating period of the primary lesions the blood is nearly always negative. Fifteen to twenty-three days after the appearance of the chancre the blood shows a positive reaction in 90 per cent of all cases. The effect of salvarsan treatment on the reaction varies. In early syphilis the Wassermann positive is easily converted to a negative, usually in about five weeks; in secondary syphilis in about eight weeks, and judicious treatment will usually keep it negative,

but a positive reaction in late syphilis, irrespective of clinical signs of the disease and prolonged treatment, is with difficulty or not at all turned to a negative. This surely emphasizes the value of thorough treatment in the early stages of the disease.

All these changes from a positive to a negative are more rapid if mercury is used in conjunction with salvarsan, and this is our best argument for a combined treatment of salvarsan and mercury.

It is advisable in every case of syphilis to control the disease as far as possible with the Wassermann test. In recent syphilis, irrespective of the Wassermann results, I believe it obligatory to continue treatment for a full year with salvarsan and mercury. It is not a good plan to wait for a positive reaction to return before re-instituting treatment. If the reaction is negative, or even alternating from positive to negative in late syphilis, we may suspend treatment safely at times, but I cannot be made to think other than that seriousluetice lesions in later life are due, not to insufficient treatment in the later stages, but to too little treatment in the first year of the disease.

Syphilis is a disease of relapses, and the best way to prevent them is to give early and persistent treatment.

Salvarsan given alone acts quickly and is eliminated quickly. In chronic syphilis the spirochetes prefer the denser tissue structures. In acute syphilis thrombosed vessels hold millions of them where they are probably not reached by any specifics thrown into the blood-stream. These spirochetes may remain quiescent for an indefinite period, then suddenly become active, a negative Wassermann becomes positive, and syphilitic antibodies are being manufactured and in the blood-stream; a latent lues becomes active, and our patient has a relapse. The best way to combat relapses is to be prepared for them; and here is where mercury is needed in conjunction with salvarsan, and does its most effective work.

While I have accorded salvarsan first place, and justly so, in the treatment of syphilis, it was not the intention of relegating our old standby, mercury, to the background; and I think it a well-nigh universal opinion that mercury has not lost its well-earned place as a very efficient therapeutic agent in the treatment of syphilis. Although in salvarsan we possess the most powerful therapeutic drug for the destruction of the spirochete, its effectiveness is much more com-

plete when combined with the systematic administration of the older remedies. I do not think it will ever completely displace mercury, but it will greatly aid and reinforce it in conquering the disease. The curative action of mercury has certain recognized limitations. In some cases it is not well borne, and in some patients it does not affect the luetic lesions, irrespective of high dosage. When a certain amount has been taken, the effect may cease to benefit the patient. Stoppage of the treatment is then necessary, or ill effects will supervene, which is expressed by severe mucous lesions (mercurial lesions), and a general lowered resistance of the patient. Next to the disappearance of luetic lesions, the body-weight is the most valuable guide of the patient's progress. Thus we must consider the seriousness of too much treatment, as well as of too little.

Mercury is mostly excreted by the kidneys, and, if chronic nephritis is present, the excretion is diminished or stops altogether. Always make it a point before beginning treatment to examine the urine for albumin. If albumin is found, and is due to a nephritis, do not give mercury until the nephritis has cleared up. If the nephritis can be excluded, the albumin is generally due to the syphilis. When albuminuria appears for the first time during treatment, the drug must be withdrawn until the albumin disappears, observing the same precaution when treatment is resumed.

Patients with malignant syphilis do not usually tolerate mercury well; therefore it must be given to them sparingly and with care. These patients often require general tonic treatment before taking the mercurials, and are real candidates for salvarsan treatment. It is also unnecessary to remark that smoking should be interdicted while the mercurials are given; and all syphilitics should refrain from the use of alcohol, for, as one authority tritely expresses it, it is easy to preserve your syphilis in alcohol.

Concerning the methods of administration, the duration, and the amount of mercury recommended: In this country the intermittent plan of treatment is generally followed, and mercury is administered per os, by inunction or intramuscular injection, with varying periods of abstinence from any treatment. Internal treatment has fewer advocates every day, but many physicians favor it, with claims of an abundance of clinical cures from its use; however, we have many clinical cures of syphilis walking the streets

today who have never received specific treatment of any kind. Just how much mercury is absorbed in internal treatment is largely speculative, as many digestive tracts absorb little or none, and the serological findings show it to be the weakest form of treatment. In contradistinction to the more effective measures, it has the advantage of being painless and cleanly. As the most often used preparation may be mentioned the protiodid, the enteric, or Bornheim pill, bichloride of mercury, 1-12 gr., either in pill or liquid form, and the mixed treatment.

The inunction method is perhaps the most efficient means of administering mercury, and, if applied properly, gives the best results. In the Dispensary Clinics we must select our patients for this method with due care, as many use the own discretion in applying it, irrespective of their physician's advice. The fact that the treatment is uncleanly, and demands privacy, time, and exercise, interdicts it with 75 per cent of the higher classes. The mercury vasogen, 4 gr. capsules, manufactured by Lehn & Fink, Hamburg, and the mercurettes of Parke, Davis & Co., which contain 33 per cent metallic mercury, are both excellent preparations.

The following plan of treatment is recommended: the patient is directed to take a thorough hot bath, and the ointment is applied to the skin with a spatula and is carefully rubbed in for twenty to thirty minutes. On the first night the calves are rubbed, the second night the thighs, the third and fourth nights the abdomen and buttock, the fifth night the arms and forearms, the sixth night rest, the seventh night repeat the hot shampoo bath, the eighth night begin over until thirty rubbings have been made, which constitute a course. During the rubbing periods baths should not be taken, and the same suit of underwear worn throughout the week. The treatment by inunctions is contra-indicated by the following conditions: (1) ichthyosis, (2) mercurial dermatitis, (3) hairy body, (4) idiosyncrasy.

The hypodermatic administration of mercury is undoubtedly the best and surest method of treatment. Its only disadvantage is in the pain and soreness produced. The chief advantages are as follows:

1. The dosage can be exactly estimated.
2. The patient is under the physician's continued observation.
3. The effect of the treatment is quickly produced.
4. It is cleanly.

The mercury is injected in the form of soluble and insoluble salts. The soluble salts mostly used are the bichloride, the succinimide, and the cyanide.

As a course treatment for syphilis I think the soluble salts are inferior to any of the aforesaid mentioned. They are eliminated in a few hours, and the best that can be said is that their effect is rapid but transitory. The dosage is necessarily small; and to give progressive therapeutic results they should be injected daily. The injection of the insoluble salts, generally speaking, gives the best results. The most popular and efficient ones are the salicylate of mercury, grey oil, and calomel.

In the Dispensary and in private practice we use the salicylate. One-half c.c. of a 10 per cent suspension in olive oil or liquid albolene is injected deep into the gluteal muscles biweekly. For a man of ordinary weight fifteen injections are equivalent to a course, that is, thirty rubbings. If the patient is heavier, we increase the number of injections or dosage accordingly,—that is, a two hundred pound man would take twenty injections. The insoluble salts given as described contain a considerable amount of mercury, which, deposited in the muscle, is here gradually converted into a soluble salt by the tissue fluids, and is absorbed. An injection is completely absorbed in sixteen days. The special and, no doubt, the therapeutic advantage of this method is due to the fact that the patient is under the constant effect of the mercury during the course; and this is what cures or controls syphilis.

Along with salvarsan and mercury the iodides are of undoubted value in some syphilitic stages. They are not true specifics, but are useful adjuvants to salvarsan and mercury throughout the course of the disease. They undoubtedly promote the absorption of syphilitic products, and may be safely called a specific for the early and late luetic headaches and pains. The absorption of the tertiary lesions by their exclusive use entitles them to a qualifying place in luetic therapy; and it is just possible that by their use many of the remote foci of the spirochetes are rendered susceptible to the true specifics.

The potassium salts seem to be the favorite in this country. In many of the European clinics the sodium iodide is given first place. The sodium salt should always be tried if the potassium is not well tolerated. The dosage is variable. In most cases fifteen grains, *t. i. d.*, is

sufficient. The dose may be raised to 50 or 100 grains, with correspondingly good effects, in many severe destructive and nervous lesions. It should be taken two hours before meals, well diluted; and untoward results will be fewer if the patient precedes it with a glass of hot water.

Iodism, acne, and nervous toxemia may complicate its use, and, if severe, call for prompt removal of the drug. The dosage should not be continued longer than three weeks; and, if given at intervals, the drug should be withdrawn for at least one week. In most cases there is considerable depression, if continued for a great length of time.

There are no hard and fast rules in the general scheme of treatment for syphilis in its different stages. Owing to the fact that the arsenic preparations have been used only a short time, it will require a few more years to definitely determine whether we shall get permanent cures from their use.

At any rate the combined treatment is to be recommended. When a patient shows a three-week or less acquired syphilis the chancre is the only symptom recognizable. If we can demonstrate the *spirocheta pallida* in this lesion, our diagnosis of syphilis is secure; and, as this is the focus from which the infection is disseminated, we should excise it when the location will permit. After excision it should not be sutured; and the open sore remaining should be touched with iodine twice daily until healed.

In private practice I make it a rule, if possible, to attempt an abortion of all early cases, and to this end excise the chancre and make four or five intravenous injections of neosalvarsan, usually five days apart. The patient then receives a full course of inunctions or intramuscular injections of salicylate of mercury, with a concluding intravenous injection of neosalvarsan. Up to date I have excised eight chancres in the early stages (before any signs of inguinal adenopathy has appeared). After observing those cases clinically and serologically now for more than a year I have found but one of the eight showing a positive Wassermann and none of them any clinical signs of the disease. When the disease has progressed to the point where the inguinal glands are involved, excision of the chancre is not generally recommended, as the spirochetes are nested away from the initial lesion, and we are treating a true systemic infection. From now on until the time of the secondaries the



disease is rampant, and the case should receive a protracted treatment. Four injections of neosalvarsan may be given in the first month, followed by a course of Hy. inunctions or injections. The patient then may be allowed to rest from treatment for three weeks, when the above-mentioned treatment may be resumed, followed by another three weeks' rest. Before continuing treatment a Wassermann test will be valuable, as it will often indicate the efficacy of the treatment.

The above two courses of combined salvarsan and mercury is of twenty-six weeks or a half year duration. In the second half year the treatment is the same, except that we may limit the neosalvarsan course to two injections, instead of four, if the patient is progressing favorably, clinically and serologically.

In the second and third year of the disease the

patient should take in the second year three courses of mercury and two courses in the third year. If the Wassermann has remained negative in the last two years the patient may be considered cured.

In late or so-called tertiary syphilis the Wassermann, when present, is usually quite persistently positive. Here the combined treatment may be used until the blood-findings are negative. In most cases this is not easily accomplished, and, when successful, the obtained negative often returns to positive shortly after stoppage of treatment. Here the Wassermann test is of the greatest value; and, if the patient shows no objective symptoms, we may safely say that a treatment sufficient to maintain a negative will insure the patient against relapses, providing the central nervous system is not involved.

## SOME COMMON ERRORS IN INFANT FEEDING\*

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Clinical results, the world over, have proven that the best food for the infant up to the normal time of weaning, is breast milk. Unfortunately, every infant does not have this fair beginning, which is so necessary for health, and artificial foods are resorted to. It must be allowed that we encounter more disturbances in the artificially fed babies than in the breast-fed.

Let us take up, briefly, the nature of these various disturbances:

First. The effect of too little food, or under-feeding. Although this is not very common, we do occasionally meet with such cases. Hare-lip or cleft-palate may make it impossible for the infant to get sufficient food. Inverted nipples may also be a cause. Some mothers have heavy, well-filled breasts, and the slightest pressure causes a stream of milk to flow from the nipple; others have spincter muscles which seem to close tightly when stimulated, and the milk flows drop by drop. The child has to work much harder when nursing such a breast, soon becomes exhausted, and falls asleep, even though unsatisfied. In such cases the child does not gain in weight, but remains stationary or loses. As a rule these infants are not restless, sleep is deep and unbroken, and they do not cry much, but their cry is rather a

whine. The stools are few and scanty, often only a stain on the napkin; and the urine is noticeably scant. The temperature is usually sub-normal, except in the early days of life, when there occurs a marked rise in temperature, often to 105°. This is known as inanition fever. It usually disappears in a few hours after the infant has been given food. Czerny<sup>1</sup> believes it due to bacterial infection from the intestines, and that it is overcome by the change in intestinal content.

Secondly. The effect of too much food, or over-feeding. Most writers consider this condition more common and far more disastrous<sup>2</sup> than under-feeding. The causes of over-feeding are either nursing too often or receiving too much at a nursing. It leads to a nutritional disturbance called *dyspepsia*. In a large number of breast-fed babies, it results in the removal of the child from the breast, a step which should never be taken unless absolutely necessary, and which can often be avoided with a little care and patience. The most common symptom is "colic." Sometimes it occurs a few minutes, sometimes hours, after nursing. When coming on hours after nursing, the intestinal tract seems to be involved mostly; when after frequent nursing, there seems to be both stomach and intestinal irritation. Diarrhea is nearly always present. There are from six to eight stools a day, green in color and

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containing mucus and curds. Vomiting is also frequent, often just a spitting up of small amounts of vomitus. The temperature tends to be above normal. The tissue turgor is only reduced in the later stages. The skin is usually fresh in the early stages, but later becomes pale. Nervous disorders may appear. The weight-curve shows decided changes. A marked gain in weight followed by a stationary period or a loss, is very characteristic of this condition.

Continued over-feeding with dyspepsia often results in facial eczema, and eczema of the scalp. It also lowers the child's resistance. If the child is properly treated upon first appearance of these symptoms, recovery is immediate; if the symptoms have existed for some time, their disappearance will take longer. Careful regulations of the diet are necessary, and even then colic may persist long after all other symptoms have disappeared. Since this condition is caused by too much food, the first step in our treatment is to reduce the food. This can be done by the four-hour intervals between nursings. It is very unusual to see dyspepsia in a child that has been started out on four-hour feedings. In severe cases it is advisable to give only sweetened water or barley water at first for twenty-four hours. Fresh air is a necessity. In the artificially-fed infant, if the food in any case has been pushed beyond a certain point, there is a lowering of the tolerance for all foods, and especially that particular food, which point must be determined in every case. In the normal child it is about 100 calories per kilo weight in twenty-four hours. The degree of tolerance regained by reduction of the food quantity depends on the severity of the case and the length of time the disturbance has existed. Third. The effect of too much fat. Fat plays an important rôle in the case of nutritional disorders. The chief disturbance caused by fat is that condition called by Czerny "Milchnähischaden," by Finkelstein "Bilanzstörung," and by some Americans "weight-disturbance." The fat of the food is the element responsible. This does not mean that the amount of fat in the food is necessarily large, but that the amount of fat is above the tolerance of the infant for milk-fat. Artificially-fed infants are almost exclusively affected. They are pale and fretful, and, while perhaps fat, are pasty. Their appetite is poor, and their sleep is disturbed. They gain weight slowly, and what is gained one day is lost the next; hence Finkelstein's term "Bilanzstörung," the most striking thing, however, is the character of the stools. They are constipated, hard,

dry, and of a foul odor. They are white or grey in color, and are known as "Seifenstühle," certain chemical changes have taken place in these "Seifenstühle." The fat is absorbed to a considerable extent. It has been shown that the carbohydrates are decreased to less than half of what is ordinarily found in the stools. Calcium and magnesium are excreted in large quantities. Fat and calcium must be present in the food in considerable concentration in order that constipation and soap stools can result. The dryness is due to adsorption of water by the large intestine and rectum and to insoluble soaps. The reaction is alkaline. The urine has a peculiar odor, as the mother says, "strong," the ammonia content is high, the indican reaction distinct. The urine is highly irritating.

This condition, "Milchnähischaden," responds quite readily to treatment. Increasing the fat makes the condition worse, while diminishing the fat improves it. A diminution in milk, with the addition of cereal and sugar, is very good correction. In severe cases it is desirable to remove all fat, as far as possible, from the food (skimmed milk). Then, as soon as possible, a trial of the fat-tolerance should be made by substituting one or two ounces of whole milk for the same quantity of skimmed milk. If this can be taken care of properly the fat is gradually increased every other day, and so on. If the stools begin to show chalky masses in them, the fat should again be reduced. In milder cases the reduction in amount of whole milk and the addition of carbohydrates are all that is necessary. By reducing the milk we also reduce the calories, but these are made up by the carbohydrate added. Malt sugar seems to be the most desirable of the carbohydrates in these cases. If simple milk reductions, with addition of carbohydrates, do not suffice, it is advisable to give malt soup (Keller). It seems to work magic, almost, in these cases: for after a few days there is increase in weight; there are several bowel movements a day, where before there was obstinate constipation, and the stools are of good consistency. After five or six weeks of malt soup we had best give a mixture of half milk and half barley water plus one, two, or three teaspoonfuls malt extract. Children under three months should receive a so-called thin malt soup. In some severe cases of "Milchnähischaden" the infant's tolerance toward milk-fat is so decreased that they do not gain upon malt soup, and we must then resort to a fat-free food, namely buttermilk.

Fourth. We have to consider the protein constituent and its effect in the food for the infant. Protein is the chief nutritional content in an infant's food. It replaces that which has been used in the performance of the ordinary functions of the body, and lost as secretions, a small part is burned to furnish energy, and a distinct amount is retained for growth. The effort all along has been to explain why children thrive on breast milk and oftentimes do so poorly on cow's milk until it has been modified several times, or another food resorted to. By chemical analysis<sup>3</sup> it was shown that the most striking difference in the composition of the two was that the protein was present in three times greater quantity in cow's milk than in human milk. It therefore seemed logical to suspect the casein as the substance most difficult of digestion. Then, when Biedert determined what he considered undigested casein in the stools, it was assumed that the excess of protein in cow's milk was the explanation of its failure as a food for infants. These and similar theories were supported for many years, and even up to twelve years ago. It was then shown that Biedert's observations were false. The undigested casein curds were found to be insoluble soaps of the fatty acids, and they are also found with breast-feeding (Talbot). Protein curds which occur in the stools with raw milk disappear upon boiling the milk (rennet precipitates the casein into fine flakes).

Thus far we cannot prove that the protein of cow's milk, in quantities two or three times that of breast milk, has any injurious effect upon the infant. There is a possibility that a great excess of protein under certain circumstances may be harmful. Holt and Levine<sup>4</sup> have found that large amounts of casein by mouth can cause a rise in temperature. When the food was stopped, the temperature subsided. It must still be allowed that protein has very little to do in causing nutritional disorders.

Fifth. The effect of too much sugar and starches. Too much sugar in the food and over-feeding are some of the grave errors often brought on by generous parents. Nutritional disturbances, characterized by diarrhea, vomiting, and slight temperature, follow. Breast-fed, as well as bottle-fed, infants are affected. Infants under three months are most likely to be affected, because their food tolerance is narrowly limited. There is some difference of opinion as to which of the sugars is the least harmful, and why. All carbohydrates used in nutrition have the same nutritive function and about the same

caloric value, but they differ in physical properties (starch and glycogen being insoluble), in the amount of digestive effort they call forth, in fermentability, and rate of assimilation. Care should be taken in selecting the sugar most desirable for the case. For example, cane sugar is not directly fermentable, but is apt to cause fermentation. Maltose is exceedingly fermentable, yet it is used especially in intestinal fermentation. No matter what form of carbohydrate is taken, if it can be digested it is ultimately changed into dextrose before utilization, and carried to the liver, where it is converted into insoluble glycogen and stored for future use. If absorption is too rapid, the liver cannot convert it into glycogen as fast as it is presented, and the excess passes into the urine,—alimentary glycosuria. The final product to be produced from carbohydrates taken as food is glycogen. Only fermentable sugars form glycogen, dextrose, maltose, cane sugar, and milk sugar, in order. A certain amount of energy is expended in digesting and assimilating carbohydrates; and their relative food value depends on the amount of energy that must be expended in converting them into dextrose.

The reason that maltose and cane sugar have greater availability than milk sugar, is, that the maltose is completely converted into dextrose by the chemical addition of water, and is at once available. Cane sugar when split up is converted, half into dextrose and half into levulose, which the enzymes of the blood can convert into half dextrose and galactose, which must undergo further change. The net energy value of maltose is greater than that of cane sugar, and that of cane sugar is greater than that of milk sugar.

Mixed carbohydrates, as Keller's malt soup and other mixtures containing flour, are considered valuable in many cases. While the child cannot gain without enough sugar, too much sugar may be the cause of intestinal disturbances.

As we stated before, the best food for the healthy infant is mother's milk. But even so, we often find conditions which need attention with the breast-fed babe, such as too frequent feedings, small quantities at too frequent intervals, or too large quantities at too frequent intervals and also irregular feeding. Lowenburg<sup>5</sup> considers over-feeding and irregular feeding responsible for the greater number of cases of functional vomiting in infants under one year. We also find infantile diarrhea following irregular or over-feeding.

Having reviewed these common errors in in-



fant-feeding, let us also consider rational feeding or how we may avoid the above errors. We agree that breast milk is the best food, and should be given whenever possible to the new-born child. We should encourage every mother to nurse her child. Many mothers wean their babies for trivial reasons, which can oftentimes be traced to the physician in charge. One of the excuses is, that the infant doesn't get enough milk; in other words "the mother's milk gave out." If the supply of milk is scant the child should not be removed from the breast; but two or three feedings of modified cow's milk per day should be given, together with the breast milk. Mortality statistics show the value of breast feeding. The breast-fed child shows a far greater immunity to infection. Some believe there is a passage of immune bodies from mother to infant in the mother's milk. Czerney<sup>6</sup> believes the cause lies in the high fat content of the breast milk. Langstein<sup>7</sup> says that the difference in different breast milks has not been proven, and holds that all breast milk is adapted to the child; also that, after the ninth month, the breast milk contains too little iron, and he advises the giving of small amounts of vegetables and milk dilutions.

A great deal has been written and much emphasis laid on the feeding intervals. It need be repeated every chance we get, and we cannot emphasize too much the value of the longer interval between feedings. This holds in both breast and artificially fed infants. The four-hour interval brings excellent results in most cases. In special cases, shorter intervals may be advisable, but not as a rule. The advantages of longer intervals are absence of indigestion, good appetite, regular sleep, and gain in weight. It also gives the mother more time to herself, which is of some value.

The amount of breast milk taken at a feeding can be determined by weighing the infant before and after the nursing. Usually the infant nurses until the appetite is satisfied; and the appetite and quantity of milk are so nicely regulated in most cases that the demands of one are supplied by the other. With the bottle-fed infant it is not so; but there is real danger of either over- or under-feeding. What may be thought to be crying from hunger is often discomfort from too much food.

Rosenstern has made a study of this, and has found that 100 calories per kilo of body-weight is sufficient for normal gain on diets poor in fat and rich in sugar; while those with low sugar and high fat require more calories. Rosenstern

and Langstein consider the water content of cow's milk of the greatest importance, the carbohydrates and salts next. Without carbohydrates a gain in weight is impossible. Protein is necessary in smaller percentage, as is shown in the low content in breast milk.

The simple milk dilutions with water or barley water with the addition of carbohydrates are in general use in Germany, and are becoming more widely used in our country. From the sixth to the ninth month fruit juices, cooked cereals, vegetable purees, and toast should be gradually added to the diet. If not in the hot summer months, the child should be weaned at the ninth month, substituting one bottle feeding at first and gradually two or three, so that in a short time the child is entirely weaned from the breast. This does not apply to the premature infant.

After the first year, as the child eats more cooked cereals, vegetables, fruits, and meat juices, less milk is needed. Usually one and a half pints of milk is sufficient in twenty-four hours. Meat is not digested. The muscle fibers pass through the bowels unchanged, and should not be given until after the third year. In some infants egg albumin is absorbed in the blood unchanged, and produces marked disturbances. Eggs should not be given until the fourth year.

Each child is in itself a separate study, and we cannot apply all rules to every child. We must study each case first, and then apply accordingly to our judgment and knowledge.

In conclusion, I wish to emphasize that *all* children should be breast fed whenever possible; that regular feeding at four-hour intervals avoids many disturbances; that too much fat in the food is a common cause of nutritional disturbances and that too much food is *the most* common cause.

The sooner we can agree on these few facts, the sooner will the public be convinced that these are fundamental and will become educated to them. This will, undoubtedly, be of benefit to both the profession and the public.

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#### DISCUSSION

DR. C. A. BUTLER (Dell Rapids): At the time when I took my course in medical school we were taught that

almost all the troubles in infant-feeding came from the protein in the milk. Some few years ago, in company with Dr. Spafford, I was in Europe, and took a course on infant-feeding in Berlin. There they taught us that the fat was the cause of nearly all the trouble. After we were through in Berlin we went over to Edinburgh, and took the summer course there; and among other things they had a course on infant-feeding. They taught us that the sugar was the source of nearly all the trouble. I presume they were all right, and that all of these things caused trouble when improperly fed.

One trouble I have, however, in this matter is to get the mothers to follow my directions. I think that is the hardest proposition in the case of infant-feeding. One thing especially that I want to emphasize is the matter of too-frequent feeding. I believe the four-hour feeding is the proper thing. It was taught at the time I was in the medical school that we should feed the infant every two hours. I believe that is too often; it is a hard matter to get mothers to let them go four hours, but it can be done.

Another thing which I find in my work, is that I am getting to use more of the starchy foods to dilute the milk where it is necessary to resort to artificial milk.

No baby should be nursed by the mother after it is a year old. I believe nine months is plenty long enough in almost every case, and that never should the baby be allowed to nurse after twelve months.

DR. S. A. KELLER (Sioux Falls): I desire to ask the doctor what her experience has been with the pasteurization of milk. At the present time we are trying to

enforce the tuberculin test of cattle, and there is objection by the people who are furnishing pasteurized milk. I have not had very much experience with that milk, and I would like to ask Dr. Zimmerman what her experience has been along that line.

DR. ZIMMERMAN (closing): I am sure we will all agree with Dr. Butler that it is very difficult to obtain aid from the mother in every case in the matter of the four-hour feeding interval. Mothers have been told to feed their infants at the shorter intervals for such a long time that it is difficult to make them understand why they should extend the interval from two to four hours, especially when some children have gotten along without disturbance on the two-hour feedings. If the infant is ill, and we then prescribe the longer feeding interval, they are more apt to stick to it when the child is well again. It is up to the general practitioner to assist us in this regard, and I am certain that as time goes on we will have less trouble.

Answering Dr. Keller's question as to the pasteurized milk: Results have been good with pasteurized milk, but no better than with raw milk, provided it is clean, and can be kept clean and sweet until it is used.

A DELEGATE: How long do you keep up the four-hour feeding? During the whole period of lactation?

DR. ZIMMERMAN: Yes, sir. If we begin with the four-hour period, it is very much easier to get the child to stay by the longer intervals. If the child has been nursing every few hours, we often have some trouble in getting it on to the longer period at once.

## THE OPEN-AIR SCHOOL MOVEMENT

BY PAUL L. BENJAMIN

Secretary of the Anti-Tuberculosis Committee of the Associated Charities of Minneapolis  
MINNEAPOLIS

In the following report I shall first give a brief survey of the open-air school movement, and, secondly, a concise statement of the situation in specific cities of the United States with especial reference to the assumption of the responsibility from the shoulders of the private agency to those of the municipality.

The movement had its inception in Charlottenburg, Germany, in 1904. The school was located in a vast wood on the outskirts of the town. There the children flocked at eight o'clock in the morning. Although the instruction was given in half-hour periods, the actual time of study covered only two consecutive hours, and the astonishing result was, that these children kept pace with other children indoors, who spent twice the amount of time upon books.<sup>1</sup> Other activities which filled up the school-day were instruction in pottery and weaving, instruction in the care of the children's bodies, in gardening, and participation in the actual running of the school. The children in this school showed not only remark-

able gains in weight and an increased mental alertness, but also a marked improvement in moral tone.<sup>2</sup>

This alertness made tremendous popular appeal, so much so that the movement spread over Germany and into other countries. The first school established in the United States was at Providence, R. I., in January, 1908.

An abandoned brick school-house was used, a room being remodeled into a room of three sides, leaving one entire side open. A class of children variously termed anemic and pretubercular was started in this building in the dead of winter. "The children wore their out-door wraps, sat in warm sitting-out bags, and on cold days had warm soapstones at their feet. They were well fed, and their school studies reduced in quantity, but not in quality. Immediately they began to improve both physically and mentally, and, just as in the case of the German schools, they made marked improvement in their school work."<sup>3</sup>

Six months later an open-air school for tuberculous children was started in one of the Boston parks, and five months later, in December, 1908, a school was started in New York City on an abandoned ferry-boat.<sup>4</sup> This school was the result of an unique strike. One day the children who were convalescing on one of the ferry-boats, having been sent from one of the hospitals there, told the doctor in charge that they wanted to have a school. Through the Board of Education a teacher and supplies were at once furnished.<sup>5</sup>

Work was begun in Chicago in the summer of 1909. In 1910 so interested were the children in their work that they refused to take a vacation.<sup>6</sup> The idea soon spread to other cities all over the country until at the present time there are over five hundred open-air and open-window class-rooms in the United States.<sup>7</sup>

The movement has long since passed out of the experimental stage, and is no longer a spasmodic innovation, but is recognized as an integral part of educational progress. It is already being hailed as a toning-up factor, not for anemic or tuberculous children only, but for normal youngsters as well. Undoubtedly, the open-air school movement during the next decade will be a movement looking toward the conservation of the robust child, as well as the sick one.

Not all the features of the usual open-air school are given equal value by different doctors and educators. Leonard P. Ayres, at the National Educational Association meeting in 1911, stated that an "open-air school is a combination of sanatorium, play-ground, and school-room, in which the daily regime consists of double rations of air, double rations of food, and half rations of work." He enumerated eight requisites for such a school: namely, abundance of pure air, plenty of good food, sufficient warm clothing, shelter from the wind, shelter of refuge during cold weather, sleeping after the noon-day meal, the services of a skilled doctor and a competent nurse, and the right kind of a teacher.<sup>8</sup> Of these eight the fresh-air treatment is the cornerstone.

Some workers feel that the feeding and rest period is not essential to the establishment of an open-air school,<sup>10</sup> although Mr. Frank Mann, Secretary of the Committee on the Prevention of Tuberculosis of the Charity Organization Society, New York, states that "the greater benefit, however, will probably be obtained where feeding is given." As regards the rest hour, F. J. Bruner remarks that "the effect of the daily siesta in the way of enhancing the children's physical

vigor and developing an increased mental alertness and plasticity, it is perfectly logical to believe, must be very striking."<sup>11</sup>

Numerous authorities attest to the remarkable results that have been obtained through these schools, from the original experiment in Charlottenburg to the movement in our own city. Amazing gains in weight and in general improvement in the child have been reported.<sup>12</sup> Dr. Kneeshaw, physician at Camp Harlowarden, of the United Charities, Chicago, says, "there is not only a marked improvement in weight of the children, but also in their mental life. The posture of the children was changed and the vitality and resistance against infection was increased in an immeasurable degree. Children who were anemic came back robust, and children who were subdued and depressed came back bubbling over with enthusiasm and life."<sup>13</sup> In many instances, children that were behind grade, dull, and even unruly have responded in a surprising way to the open-air treatment, their mental, moral and physical life taking amazing strides; often even their progress has been greater than that of children in the shut-in schools.<sup>14</sup> In an article in the *School Review*, Dr. Charles H. Keene states that a study made in the Minneapolis schools shows that the attendance is better in fresh-air rooms than in others.<sup>15</sup>

Many of the replies received by the writer from some twenty cities bubble over with enthusiastic espousals of not only the open air school movement but also of open air class-rooms in all school buildings, for normal as well as tuberculous children.<sup>16</sup>

Further, the general opinion as expressed is, that the benefits derived from the open-air schools are threefold: physical, mental, and moral. Sherman C. Kingsley says that "the universal testimony is that the children gain in weight, that temperatures are reduced, that listless children become alert and attentive, and that there is a marked change in the mental grasp."<sup>17</sup> Quotations from some of the letters received will bear out Mr. Kingsley's assertion: "We have found that the children under open-air school treatment do about the same work as the grade children in considerably less time, leaving the extra time for rest and recreation. There is also a marked improvement in the child's viewpoint of life; he is happier and more social-minded—I think our ideal should be fresh air for every school child. If we secure magical results with poorly nourished children enough people are



eventually going to insist that it is good also for normal children."<sup>18</sup> "It is difficult to determine the mental and moral gain. I am sure, however, that there is a gain along these lines."<sup>19</sup> "In both of these classes (open-air classes) the mental and moral gain have been marked, as well as the physical gain."<sup>20</sup> In a study of open-air schools made by B. S. Warren, Past Assistant Surgeon of the United States Public Health Service, the following results were found: "In about 90 per cent of children (in open-air schools) the rate of gain was greater than for the normal children in the rooms of the public schools \* \* \* the attendance is greatly improved \* \* \* the percentage of absentees is much less than in the public schools \* \* \* the progress in their grades is remarkable, even though they work little more than half the time. As compared with the children of the public school, they not only keep up in the grades, but many (nearly 50 per cent) go ahead. The St. Louis open-air class completed in eight months' time the usual amount of work done in the public schools and twenty per cent more; in other words, they did in eight months the work that the normal child in the indoor public school would do in nine and one-half months. One class in New York City which was 19 per cent below grade on admission in October was only 9 per cent below the following June, making the normal progress plus 10 per cent more than the child of the public schools. They never seem to fag out, and are as ready to do arithmetic in the afternoon as in the morning, and are as fresh and alert when dismissed as on arrival."<sup>21</sup>

That the public realizes the value of these schools is seen in the fact that there are now at least five hundred public and private open air class-rooms in the United States. Further, that the support of these schools is being recognized as a public function is seen in the trend from private to public supervision, the experimental work being done usually by a tuberculosis association, and then, when the value of the experiment has been conclusively proven, being taken over by the city, usually through the Board of Education. Dr. Warren, in his study made in 1912, found that of 51 schools, 15 were wholly supported by the Board of Education, and 34 in part.<sup>22</sup> Undoubtedly many of the 34 have since gone into control of the city. That the maintenance of the school is a public function is freely expressed. In an article on "School Feeding," Louise S. Bryant states, "in all countries, school

feeding, begun by private philanthropy as a relief measure, or by a semi-official attempt to encourage school attendance, or in some cases to make it possible, becomes gradually recognized, first by municipalities and then by states, as a legitimate extension of the principle of compulsory education; second, as soon as the state begins to take part in the provision of food for its children the meals lose the character of relief measures, and become factors in education." Dr. Henry F. Goddard, the authority on public-mindedness, takes practically the same position.<sup>25</sup> However, where feeding is given it should be given as relief, and with a full knowledge of the facts.

In the personal study made by the secretary of 23 schools, in 10 the open-air schools are being entirely financed by the city, in 11 there is a joint responsibility with some other association, usually an antituberculosis association, and in two, Denver, Colo., and Winchester, Mass., the open-air rooms are used entirely by normal children. Those cities in which the schools are maintained by the city are New York, Buffalo, New Orleans, Springfield, Newark (N. J.), Montclair (N. J.), Richmond (Va.), Waterbury and New Britain (Conn.). A preventorium is maintained at Albany. Those schools in which the support is partly by the city are: Detroit, Mich.; Trenton, N. J.; Rochester, N. Y.; Orange, N. J.; Minneapolis, Minn.; Columbus, Ohio; Syracuse, N. Y.; So. Manchester, Conn.; Brooklyn, N. Y.; St. Louis, Mo.; San Francisco, Calif. (under way). However, in many of those cities where there is a joint responsibility, the expense incurred by the local association is oftentimes very slight, as, for instance, in Brooklyn, where the Brooklyn Bureau of Charities pays the salary of a special teacher for corrective exercises and of instructors in cobbling and sewing, and the street-car fares,<sup>26</sup> the rest of the expense being borne by the city. The principal division of expense where there is a joint responsibility, seems largely to be along the same cleavage as in Minneapolis; namely, the private association furnishing the food, equipment, cooks, and the school board the teacher, building, janitor service, school equipment, etc. In two of these cities, Columbus and Brooklyn, there is a feeling that the experiment has been sufficiently well proven to become part of the school-plant, and in the former city there is a definite movement toward that end.

The experience of Newark, N. J., shows how the full expense of carrying on the open-air

schools gradually comes within the province of the school board. About five years ago the Board of Education at Newark was subsidized by the Anti-Tuberculosis Association to the extent of a thousand dollars. Mr. Easton writes, "We now have four special open-air classes in addition to the open-air school. In this tuberculosis school the Board not only provides a morning lunch but a hearty noon-day meal and some refreshments before the children leave for home in the afternoon. The Board, however, has provided this special equipment as well as sitting-bags, reclining chairs, etc."<sup>27</sup>

That the trend is from private experimentation to public control is further shown in the fact that in the following cities in which the schools are being financed by the municipality, the movement had its inception with a private association: Montclair, N. J.; Albany, N. Y.; Newark, N. J.; Richmond, Va.; Springfield, Mass.; and Waterbury, Conn.

That the open-air school and the open-air class-room are being recognized as a preventative measure as well as a curative one, is one of the interesting facts brought out in the correspondence. As Dr. McCord of the Albany schools expresses it, "Our ideal should be fresh air for every school child,"<sup>28</sup> or as Dr. Todd of the Syracuse schools says, "But it has been found that it is better to give the children of all the schools practically open-air class-rooms and in that way cease manufacturing candidates for the open-air school."<sup>29</sup>

In Minneapolis, open-air class-rooms are in use in at least five different schools, and a number more will be put in operation the next school year. In this connection the writer would like to recommend that a consistent effort be made by Anti-Tuberculosis Committees to secure open-air class-rooms in every school building, and that provision for such class-rooms be made in all new buildings that are erected. Since the results of the open-air treatment are so far-reaching, surely, the cities of the Northwest should be the pioneers in a movement of such educational value. Educators differ on the Gary plan,

but no superintendent, who has given the Open-Air School idea a thorough trial is other than enthusiastic about its success.

In conclusion, I should like to quote from Leonard P. Ayres. "The Open-Air School," he says, "will take its place in the history of education as marking one long step toward that school system of the future in which health will be contagious, instead of disease, and where pure air, pure water, and abundant sunshine will be rights, and not privileges. In that school of the future, the child will not have to be either truant or tuberculous or delinquent or defective to get the best and fullest measure of education."<sup>30</sup>

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# THE JOURNAL-LANCET

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## THE SIGNIFICANCE OF BLOOD PRESSURE

The medical profession is in danger of being sucked off its feet by the tidal wave of blood pressure. So much has been written upon the subject, and so many conflicting statements have been made, that, unless one is very particular and very careful, blood pressure findings are often of no value. The average man in taking blood pressure relies wholly upon the systolic findings and utterly disregards the diastolic register, and not infrequently wholly overlooks the pulse pressure. As in many other new methods of diagnosis, we fail to take into account the entire results of the survey of our patients. We not infrequently jump at conclusions, particularly when we find anomalous cases. For instance, a man supposedly in good health, vigorous, robust, up to his normal weight; a man of moderately bad habits, that is, either he drinks or takes drugs, or has been intemperate in his foods, presents himself with a systolic pressure of 110, and a diastolic of 70. His blood pressure may mean something of importance, but it is very difficult to arrive at any satisfactory conclusion. On the other hand, a woman of fifty, who, within a year, has had a slight paralysis of

her right arm and has a moderate aphasia, from all of which she makes a practical recovery, presents herself with a history of a high-strung nervous individual, with a systolic pressure of 300. She is able to be about, isn't conscious that anything serious is pending, but the examiner feels that conditions are very uncertain, perhaps critical, he fears a heart, kidney, or arterial lesion, and she is put to bed. In a few weeks her blood pressure goes down to 200, she is about after this, considers herself about as well as usual, and her blood pressure varies from 180 to 220. Both of these people live on, their errors corrected as far as can be, and they outlive their expected allowance of time. In these two extreme cases the blood pressure findings are not very helpful. The general run of cases, however, are among those who have the modern diseases of middle life, heart, kidney, and vessel disorders, and in many of these cases the blood pressure findings are suggestive, if not more or less valuable. It is supposed that when an individual has an acute nephritis, a moderately dilated right heart, or largely dilated left heart, that there is something radically wrong with the circulatory system, and one would naturally look to blood pressure for assistance, but the reading of the dial reveals nothing; the blood pressure may be within the normal range, all things considered, and yet the individual is in greater danger than the two cases first cited. When the diastolic pressure is high and the systolic pressure is of moderate degree, it is supposed to indicate a chronic interstitial nephritis. Then, too, variation in the reading of the dial suggests valvular heart disease, myocardial degeneration, or arteriosclerosis. All sorts of varieties of blood pressure are encountered, both in diseased and in normal states, but particularly are the findings misleading in those of the emotional type. Ordinarily speaking, a man is supposed to be better off, can do better work, with his blood pressure up to the normal, both systolic and diastolic; or, even if a little higher than would be considered normal it is not a matter for serious anxiety. There is no question but what the emotional individual may maintain at more frequent intervals a high blood pressure than the placid, phlegmatic individual who has a blood pressure within the normal radius. Not infrequently, however, pathologic changes are more important in connection with high blood pressure than those which are clearly evident and likely to lead to degenerative alterations of the circulatory organs. For instance, Dr. J. J.



Rowen, Jr., in an article in *The Journal of the A. M. A.*, March 18, states that a diastolic pressure of 105 m. m. would suggest arteriosclerosis, but if in the following reading it goes down to 90, it probably means only a spasm of the arterioles, and is due to stimulation of the constrictors.

Now, it is quite safe to assume that certain people who are advancing in life have a moderate, but a normal change in their blood vessels, and with it a moderate change in their blood pressure, and yet it is extremely doubtful whether blood pressure findings will be of any great value. Patients who suffer with syphilis or who are habitual alcoholic and tobacco users usually have a high permanent diastolic pressure, while occupations requiring long continued mental concentration, especially with tobacco in excess, are seen to operate mainly in the production of high systolic pressures, and an abnormally high pressure pulse. While all these things may be said with truthfulness, they may be subject to wide variations; that is, similarly afflicted individuals may have widely different blood pressure readings.

Undoubtedly blood pressure observations are very valuable during surgical operations, and are considered a very safe guide to the operator, particularly so if unsuspected and unidentified kidney states are present; anything in fact which may throw a toxin into the blood stream may greatly change the blood pressure while the patient is on the table. Many surgeons have learned to keep a very accurate watch of blood pressure during all sorts of surgical manipulations, but when we look over the field of blood pressure carefully and consistently we are obliged to admit that it is still among the experimental methods of medicine. We have no reliable rules to guide us, we have nothing upon which to fix a permanent basis of opinion, and we so constantly meet with unexpected alterations and changes in blood pressure states that we must wait for time and experience to demonstrate the true value of blood pressure findings.

#### CHRONIC APPENDICITIS!

While two surgeons are sparring with one another in verbal surgery, the patient lies open-eyed upon the table, anxiously hoping against hope. He has come to what he considers the crisis in his life. The question in his mind, and in the mind of the surgeon, is, shall an operation be performed? The patient admits reluctantly

that some time in his early life he had a pain in the right side of his belly, that the pain was accompanied by some temperature, that he was very uncomfortable, and that his digestive organs were evidently disordered; but that after two or three days the trouble subsided and he got up, apparently well. Perhaps this story was repeated at long intervals, until, finally, one day he confided his troubles to his medical friend who investigated it, got his history, found a little resistance of the abdominal muscles and said, "you must be operated upon." For what? For chronic appendicitis! The patient often helplessly submits to the operation, and, fortunately, often a pathologic condition is found which justifies the opinion of the attending surgeon. After a few days of discomfort caused by the accumulation of gas in his intestinal canal, perhaps a day or two of nausea and discomfort from the anesthetic, convalescence is established, and within ten days or two weeks the patient is on his feet and has recovered. The surgeon has removed what he considers to be an old adherent or inflamed appendix; perhaps it contains within its depths an enterolith; perhaps, too, it contains a drop or two of pus. The man makes a good recovery, his appendix is safely out of the realm of danger, and he goes back to his occupation invigorated, refreshed, and encouraged.

Another patient goes to his medical adviser with an indefinite history, perhaps of pain not very accurately located, some intestinal or digestive errors, a general run-down condition; and he falls into the hands of a man who is eager and ready to operate, and after a little persuasion the operation is performed, but much to the surprise of the attending surgeon nothing is found. The appendix is apparently normal, although the investigating operator finds for his own comfort that something was out of order with the man's appendix, and that something may be an indefinite, undefinable condition without a pathology. The majority of cases of this kind are operated upon by the "ever-ready" operator. First, because the operator is in the habit of operating, and he not infrequently gains the reputation of operating on anything that will lie still. After a while it dawns upon him or some of his confreres that the operation did not benefit the patient, a rather unexpected outcome. The patient still complains of his digestion, he complains of being tired, he hasn't the proper "pep," and he is unable to do his work successfully. He tires easily, loses his courage, his ambition,

and he finally drops into the ranks of the semi-invalid class. He is, in point of fact, primarily a neurasthenic who is filled with vague fears, nervous disorders, and not infrequently pains, and yet he has been operated upon, but unsuccessfully.

These two cases were brought out very clearly in a paper read by Dr. Archibald MacLaren at the Minnesota Academy of Medicine in April. Dr. MacLaren intimated very broadly, conservatively, and honestly that there were a great many such patients who were typically neurasthenic, who did not recover from their operations, of whatever nature, and he came to the conclusion that such a patient should not undergo surgical interference. First, because he was a neurotic. This fact is easily established by a careful survey of the man's history, his ancestral defects, his environment, his occupation, his domestic and business disturbances. All of these things lead him into the neurasthenic class, and no surgeon or physician should overlook this important fact in the history of every individual, for if he did, the general opinion entertained by the public, and by many medical men, and by a good surgeon, that operations are frequently unnecessarily performed would be a justifiable conclusion.

Dr. MacLaren's paper excited some anarchistic discussion; for a man of Dr. MacLaren's reputation to read a paper of a high order in which he emphatically asserted that many patients should not be operated upon because they were neurotic types, rather incensed some of his surgical brethren. Dr. MacLaren's contention was that it was extremely doubtful if there was such a condition as chronic appendicitis. He believed there was a condition, however, of relapsing appendicitis, and he was inclined to exclude from his surgical vocabulary the term chronic appendicitis. Other surgeons who were present differed with him with equal positiveness and maintained that chronic appendicitis was a common occurrence, that it was commonly relieved by surgical operations, and that their patients recovered, not only from their appendiceal disorder, but from the accompanying symptoms which are common in abdominal diseases. When the term anarchistic is used it is used advisably, and with the firm hope that there will be less surgery done, except when it is justified by definite pathologic states.

It is a matter of common knowledge that too many operations are advocated and performed by inexperienced men; first, men inexperienced in diagnosis; and, second, men inexperienced in surgery, and the result is that a large number of people visit doctors' offices who present from one to eight abdominal scars, showing that they have been operated upon a number of times, and when the whole situation is sifted down to a rational basis there has been no justification for surgical interference. It is not improper to state at this point that the surgical profession, and we speak mainly of those who are enthusiastic, and optimistic, and wholly surgical in their minds, do not go into the history of the individual sufficiently; neither do they confer as they should with the internist and the neurologist in their doubtful cases, and the time must come when more conservative surgeons shall adopt this suggestion and let it be said here that there are a number of good, conservative, skillful, experienced men who have come to the same conclusion that Dr. MacLaren has reached, that surgery and surgical disorders must be given the same careful analysis and study that is given by the medical man in his effort to search out cause and effect. Years ago, when the evisceration of the pelvis was quite in order, the surgeon removed the uterus, ovaries and tubes, and exhibited his display of so-called pathologic material with a great deal of enthusiasm, because he had performed an operation and his patient had recovered; that is, the patient had recovered from the operation. As time went on it was found that the patient did not recover from the long chain of symptoms which had been annoying and persistent, but finally, when conservatism and keen analysis and good diagnosis occupied the foreground, the women were permitted to retain their uterus, ovaries and tubes, and now one hears but little of these violent hysterectomies, although there are still surgeons who conscientiously believe that these organs may be removed with safety, and they still entertain hopes that the patient will recover from the bad habits of their neurotic existence. Now the pendulum is swinging again away from the abdominal surgeon, and he is considering more conscientiously and more deliberately the advisability of operating upon this uncertain type of individuals.

## CORRESPONDENCE

### A NEW MEDICAL JOURNAL WANTED— DR. FARR'S ANSWER

TO THE EDITOR:

On account of my interest in the medical profession I wish to thank you for calling attention so pointedly to a portion of my address which appeared in *THE JOURNAL-LANCET* of March 1, 1916, relating to the establishment of a medical journal under the direct auspices of the Hennepin County and other medical societies. The discussion aroused by your editorial has served to renew the interest of those who have at heart the future progress of our profession in this locality. I also wish to thank you for the privilege of replying to the editorial, a privilege which your challenge, upon various points, obviously gives me.

The geographical division which you make is excellent, it seems to me; and the unity of the Northwest, with its center in Minnesota, a state whose medical profession you have properly ranked, very naturally makes it incumbent upon Minnesota to bring out the best sort of a journal possible.

Your division of medical journals, as one of my friends facetiously remarked, into "good journals, bad journals, and *THE JOURNAL-LANCET*," is perhaps, fairly acceptable.

This brings us to the question of my recommendation, and I will say, to begin with, that, in making this recommendation, I had in mind the unification of the medical profession of this section on the proposition of a medical journal; and, although my language was rather loose, and might, therefore, be misinterpreted, I can see no reason why you should make the quotation "conducted by medical men" or "owned and published by medical men" when my words read "directed by medical men."

You seem to lay great stress upon the point that a busy practicing physician would not have time to oversee the management of a medical journal, and that the manager must necessarily be a layman. In this regard I will say that, with the information which I am able to get, most of the best medical journals are directly controlled by medical men. This does not necessarily mean that all the proof-reading, the type-setting, or, perhaps, the delivering of the journal to our offices, must be done by doctors. It means that

the journal should be under the direct supervision and control of representatives of the leading medical organizations of this section, and I must take issue with you when you state editorially that such a journal would drop into the class which you choose to describe as "a nondescript journal, accepting all contributions, copying not a few," etc.

In answer to your query regarding whether or not I would be willing to submit my articles to such a journal as you choose to read into my words, I would say, unhesitatingly, "NO." On the other hand, I would be very proud, indeed, to have any contributions of mine published in such a journal as I have suggested.

I note with satisfaction that you agree with me that my plan would be "ideally the better way." It is my humble opinion that in this way, and in this way only, can the medical profession of this section be represented by a medical journal which will properly reflect our caliber.

Yours very truly,

R. E. FARR.

Minneapolis, April 7, 1916.

Dr. Farr's reply to the points raised in our editorial is so far wide of the mark, that further comment seems wholly unnecessary.—THE EDITOR.

## REPORTS OF SOCIETIES

### MINNESOTA ACADEMY OF MEDICINE

The regular monthly meeting of the Society was held at the Town and Country Club, April 12.

The usual dinner preceded the meeting. In the absence of the president, the vice-president Dr. A. R. Colvin, presided.

Dr. L. G. Rowntree, Professor of Medicine, University of Minnesota, was proposed for honorary membership by Drs. Moore, Litzenberg, and Schwyzer. Referred to the Executive Committee.

Dr. A. E. Wilcox reported three cases.

Case 1. Esophageal diverticulum. Had been operated on by the Bevan method of plication. Showed recurrent symptoms six weeks later, when a secondary operation was done; the same procedure instituted, but aided by intra-esophageal observation with esophascopes during operation. The approach to the diverticulum was made difficult at the second operation by scar tissue, necessitating excision of the left lobe of the thyroid. The patient made a complete recovery, and has been



free from symptoms for one year; gained thirty-five pounds in weight the first two months.

Case 2. Partial gastrectomy and pylorotomy. The operation was performed for a massive duodenal ulcer. Billroth's technic, number two, was employed, facilitated by the use of Payr's clamps. Uneventful recovery; rapid gain in weight and strength. Normal subjective symptoms six months later.

Case 3. Prolapse of the rectum in a woman thirty-four years of age. The prolapse protruded three or four inches every time the bowels moved. By plicating the peritoneal fold—Douglass's pouch—with linen sutures, as suggested by Dr. C. H. Mayo in 1902, and having this technic observed by the assistant through a proctoscope, the amount of plication was accurately gauged. After a year's observation, the patient has had no trouble. Bowel movements normal.

Two cases were reported by Dr. A. E. Benjamin:

Mrs. E. K., aged 54. Five children. Hysterectomy for fibroids in 1912, and gall-stone operation in 1912, with obstruction of the duodenum. In May, 1915, operation for obstruction of the pylorus and duodenum; after which operation, patient began vomiting, retaining only liquids. In October, 1915, operation by myself, at which time a great many adhesions were found around the duodenum and hepatic flexure of the colon. The omentum was firmly adherent to the abdominal wall; nodules existing in the stomach wall and the parietal peritoneum, which resembled carcinomatous nodules. Microscopically, these nodules were found non-malignant. The lymphatics were greatly enlarged, especially along the lesser and greater curvature of the stomach and gall-bladder. The gall-bladder was thin-walled, and adherent. It was drained. The pylorus was patulous. There was a scar in the region of the pylorus. Owing to the possibility of a carcinoma in this case, a gastroenterostomy was not done. Numerous bands of adhesions were present, extending down in the pelvis. These were separated. In February, patient began vomiting again. X-ray, taken in the prone position, showed very little obstruction to the passage of food from the stomach along the bowel. In the dorsal position there seemed to be considerable obstruction, and inability for food to escape from the stomach along the canal. An ulcer also appeared to be present in the region of the pylorus. From March 25, 1916, patient has been vomiting almost constantly, being unable to retain any food. Operation April 8, 1916. The fundus of the stomach was adherent. There were about one-half dozen bands present, extending from the parietal peritoneum to the fundus of the stomach. These bands were severed. There were also a number of nodules of a carcinomatous nature resembling those found at operation in October. The omentum, pyloric end of the stomach, gall-bladder, and duodenum were badly adherent. A posterior gastroenterostomy was performed, using Pagenstecher for the inner layer, and chronic cat-gut for the outer.

Mr. E., aged 50. Farmer. Has always been fairly well until the last year, when he has been having a good deal of stomach trouble; been vomiting off and on for the last two months; some blood. Very much emaciated at the time of examination, October 10, 1915. Unable to retain any food, excepting, occasionally, water. X-ray reveals an ulcer of the pyloric region with a mass

two inches in diameter resembling a carcinomatous growth. Many adhesions, and a number of enlarged lymphatics. A posterior gastroenterostomy was performed. Patient made a very satisfactory recovery. Examination of the gland at the time revealed no carcinomatous involvement. Was advised to return later for pylorotomy and partial gastrectomy. This operation we did January 20, 1916, removing the pylorus, one-third of the stomach, and a small portion of the duodenum. Patient made a very satisfactory recovery and has gained weight rapidly.

Dr. Cross presented the following:

Mr. T. S., age 54, of American parentage and birth. For 35 years a practical miller in Minneapolis. Family history negative. At various times in the last twenty years has been suspected of having tuberculosis of the lungs, on account of progressive loss of weight and recurrent attacks of pulmonary trouble. A positive diagnosis of T. B., however, has never been made. During this time he has progressively lost from 180 to 120 pounds. Early in November, 1915, he was attacked with sudden pain in the abdomen, with fever and chill, no nausea or vomiting. A diagnosis of appendicitis was made, but operation refused. The pain later localized in the right lower chest, and from the description given by the patient it seems likely that he passed through an attack of lobar pneumonia, although no definite information is obtainable. When I first saw the patient, six weeks later, he was confined to the house, though up and dressed most of the day, with a low afternoon temperature, very emaciated and weak. The findings in his chest were typical of bronchiectatic cavities in the right lower lobe. Amount of sputum raised varied from 35 cc. to 250 cc. in twelve hours, averaging about 150 cc., which separated into three characteristic layers and the odor typical. There were no tubercle bacilli in the sputum on repeated examinations. X-ray showed the presence of a large irregular cavity or cavities with remains of consolidated lung about it and an area of apparently normal lung between this and the diaphragm. The case is presented because of the rather unusual recovery, with resultant chest findings, which seem to corroborate the theory of Ewart that sacular bronchiectases most often result from contractions of interstitial tissue in the lung.

During December the patient progressed favorably, his sputum gradually lessening and losing its disagreeable odor, weight increasing and appetite improving all the time. He was discharged from the Abbott Hospital in two weeks and early in March came to the office. He had gained twenty-five pounds in weight and was back again at work in the mill, feeling very well and working full time. There was almost no cough and no expectoration. Another set of x-ray plates were made, which are presented, and showed the lagging of the center of the diaphragm during inspiration, although not as plainly as it could be seen with the screen. With the fluoroscope it is quite evident that there is adhesion which holds the dome of the diaphragm during inspiration, while the excursion of the parietal borders are normal. It can plainly be seen that there is interstitial change in and near the area of the old bronchiectasis. For comparison the plates made in November are also shown.

1. Points of interest in the case are large sacular

bronchiectases following, apparently, upon an acute pneumonia, with old fibroid bronchitis.

2. Spontaneous healing and contraction of the bronchiectases in the short space of three months.

3. Interstitial contraction of lung tissue with holding of the dome of the diaphragm and apparent freedom of the parietal pleura from involvement.

Dr. Gustav Schwyzer briefly reported four cases.

CASE 1. Acute, perforating appendicitis. Male; age 38. The evening before the operation, the man was ill, but not too ill to enjoy a social occasion. He had eaten heavily of food during the day and had taken a dose of physic. In the morning he felt sick enough to think of a doctor; at noon he was examined at our office. Abdominal rigidity was not marked, though quite distended with gas. The specimen shown was located back of the cecum; it has a perforation at its base and contains a concrement of fecal matter. Much difficulty was experienced in reposing the intestines; it took at least twenty minutes. Three and a half weeks later the patient is doing well.

CASE 2. Subacute appendicitis, without perforation. This, also, was retrocecal, and did not occasion much tenderness of the abdomen. Is it the experience of others, that the inflamed appendix, when located behind the cecum, excites less rigidity in the abdomen than when it lies more anteriorly?

CASE 3. Tubercular kidney. Man 56 years of age; sick for a long time. The excised kidney shows an abscess as large as a cherry; also a tuberculous area involving the entire thickness of the kidney. On March 13th he had a temperature of 100 and a pulse of 100. He complained of pain in the region of the left kidney, which was increased upon pressure. Tubercle bacilli were found in the urine. Cystoscoped by Dr. Owre.

CASE 4. Prostatectomy. Man's age, 49. Purulent cystitis; had used a catheter for about a year and a half. Residual urine, one to two ounces. The cystoscope showed an enlarged middle lobe of the prostate. Suprapubic cystotomy with recovery.

In discussing Dr. Schwyzer's case, Dr. Farr recalled a similar condition.

Mrs. F., aged 45 years, left tuberculous kidney and ureter removed six years ago. Excellent recovery with gain in weight of 48 pounds.

The bladder, which was ulcerated throughout its whole surface, gradually cleared up, and in about six months presented an almost normal appearance. No further symptoms until four weeks ago, began to have frequent urination and burning pain in the bladder. Urine once more shows tubercular bacilli, but the bladder surface looks normal. It is therefore assumed that she has developed tuberculosis of the remaining kidney.

Dr. C. M. Carlaw reported a very unusual case of displaced and calcified gall-bladder, with a large stone in the cystic duct.

The patient, a woman forty-eight years of age, was operated on recently for a peculiar lump in the right upper abdomen. The lump had been observed for many years, her family physician diagnosing it as a floating kidney some twenty-five years ago. Three years ago she suffered from an attack of biliary colic which lasted

two days, but was not counted severe enough to require medical attention. Three months later she had a second and more severe attack, followed this time by a pronounced jaundice. There was a lapse of two years. Last August she had a mild siege of colic, without jaundice, but followed by abdominal distention. Since then she has had several such spells. In appearance, the patient gave one the impression of malignancy. Upon palpation, a hard but tender mass about the size and form of a billiard ball could be felt in the right side of the abdomen, one and one-half inches to the right of the median line and half an inch above the umbilicus. It was freely movable, gave a flat note upon percussion, and was separated from the liver dullness by a lymphatic area. The x-ray showed two shadows, one, round and large below, the other small, above. Upon opening the abdomen the larger object presented itself and was found to be a hard globular object of calcified substance, suspended by a pedicle extending to the place where the gall-bladder ought to be. But there was no gall-bladder. Instead, there was found a hard ridge of tissue that extended down to the cystic duct, from which was removed a large oblong stone. Firm adhesions existed between the mass and the omentum; also between the duct and the pylorus. The common and hepatic ducts were normal. The calcified gall-bladder, which looked for all the world like a confection of orange peel, was shown; also the stone taken from the cystic duct.

Two essays were prepared for presentation, one on "Chronic Appendicitis," by Dr. Archibald MacLaren, and one on "Emphyema," by Dr. H. T. Nippert. Only the first was read; and it was so late before the members were through discussing it that it was thought best to defer the reading of Dr. Nippert's paper until the next meeting.

Forty-five members and one visitor were present.

FRED E. LEAVITT, M. D.,

Secretary.

## STEARNS-BENTON COUNTY MEDICAL SOCIETY

The regular spring meeting of the Society was held in St. Cloud, April 20. Twenty members were present. Papers were read as follows: "The Significance and Clinical Recognition of the Various Types of Arythmia," by Dr. S. Marx White, Minneapolis, and "Present Progress of Pediatrics," by Dr. Frederick Schlutz, Minneapolis.

The following officers were elected: President, Dr. William Friesleben, Sauk Rapids; Vice-President, Dr. August Kuhlmann, Melrose; Secretary-Treasurer, Dr. J. C. Boehm, St. Cloud; Delegate, Dr. J. H. Beaty, St. Cloud; Alternate Delegate, Dr. J. B. Dunn, St. Cloud; censor for three years, Dr. G. E. Sherwood, Kimball.

It was moved and seconded that the Delegate of this Society to the Minnesota State Medical



Association be instructed to support the continuance of the medical defense proposition and to oppose any movement to discontinue same. Carried unanimously. J. C. BOEHM, M. D.,

Secretary.

#### OLMSTED COUNTY MEDICAL SOCIETY

The bi-monthly meeting of the Society was held at Rochester, Wednesday, April 12. An informal supper and smoker was given at six-thirty in the Commercial Club parlors, after which the meeting was held in the Mayo Clinic Assembly Room, where the following papers were read:

"Symposium on Bronchiectasis," by Drs. Robinson, Mann, Moore, and Sanford; "The Underlying Principles of the Dietary Treatment of Diabetes," by Dr. D. M. Berkman; "Treatment of Pneumonia," by Dr. H. H. Witherstine; "Spina Bifida," by Dr. E. H. Beckman; "Tuberculosis of the Stomach," by Dr. A. C. Broders.

H. W. MEYERDING, M. D.,  
Secretary.

### NEWS ITEMS

Dr. Ivan Linsin, of Oldham, S. D., has moved to Reynolds, N. D.

Dr. W. M. Quinn, of Scotland, S. D., has moved to Winner, S. D.

Dr. D. O. Wheelock, of Williston, N. D., has located at Epping, N. D.

Dr. T. E. Jones, formerly of Chester, S. D., has moved to Sioux Falls, S. D.

Barnesville is to have a hospital, to be known as the "Community Hospital."

Dr. W. E. Crane, of Hamill, S. D., died at his home April 5, at the age of 58 years.

Dr. J. T. Rose, formerly of Lakefield, has returned to that place and entered into partnership with Dr. W. S. Hitchings.

Dr. J. T. Leland, of Herman, has returned home after spending several weeks in post-graduate work in the Twin Cities.

Dr. R. W. Pence, formerly of Minot, N. D., but of late a resident of Texas, has returned to Minot and become associated with his brother, Dr. J. R. Pence.

Dr. W. B. Murphy, of Minneapolis, died April 25 after a brief illness. He was born in Chicago in 1871 and received his degree at Hamline Medical School in 1897.

Dr. Arthur L. Hill, for twenty years a prominent physician of Monticello, died March 27, at the Northwestern Hospital in Minneapolis, after an illness of fourteen weeks.

The North Dakota State Nurses' Association held its fifth annual meeting at Minot, April 17 and 18. Dr. J. G. Lamont, of Dunseith, N. D., and Dr. A. D. McCannel, of Minot, delivered papers.

At the last meeting of the Kotana Medical Society (North Dakota and Montana) a schedule of fees for various services was adopted, tending to make the charges in the district covered by the Society more uniform.

In our issue of April 15 we stated that a semi-annual examination by the Minnesota State Board of Medical Examiners would be held April 28 and 29. This was an error as this examination had already been held. We hope no one suffered inconvenience because of this statement.

The Lake Preston Medical Society (South Dakota) held its regular meeting at Lake Preston, April 19. The program consisted of papers as follows: "Scopolamin in Labor," by Dr. B. T. Green, of Brookings; "Anesthetics in Labor," by Dr. E. B. Taylor, of Huron; "Medical Legislation," by Dr. E. C. Miller, of Brookings.

The Anti-Tuberculosis Committee of the Minneapolis Associated Charities hopes to turn the Thomas Arnold Open Air School over to the city that the funds which have been used to support it can be used for further experimental work in the prevention of tuberculosis. The committee hopes to be able to establish a pre-ventorium for children at Glen Lake.

In the list of six states and twenty cities, as announced by the American Red Cross as winners of pennants and honors in the second annual competition for selling the largest number of Red Cross Seals per capita, Minnesota is shown as winning the first prize in its class, and Philip, S. D., is the only city in this territory winning any prize, it receiving second for its class.

The Board of Health of Minneapolis wishes to call the attention of the physicians of the city to the fact that they are as liable under the law for failing to report cases of typhoid fever as for failing to report diphtheria or scarlet fever. The Board do not care to take cases to the courts, but they will be compelled to if more attention is not paid to the matter. It is surprising that more vaccine for typhoid is not used.



The next examination for admission into the Medical Corps of the Navy will be held on or about June 16, 1916, at Washington, D. C., Boston, Mass., New York, N. Y., Philadelphia, Pa., Norfolk, Va., Charleston, S. C., Great Lakes (Chicago), Ill., Mare Island, Cal., and Puget Sound, Wash. Application should reach the Bureau of Medicine and Surgery not later than June 5, 1916.

Every doctor in North and South Dakota should attend the annual meetings of the State Medical Associations to be held this month. Remember that the committees in charge of the programs have done all they could to make the meetings of real value to you. If you want to get anything out of these meetings you must attend, and it will be well worth your while to do so. See the cover of this issue for date and place of your meeting, if you do not already know them.

Essays will be received in competition for The Samuel D. Gross Prize until January 1, 1920. The prize amounts to \$1,500, and is given by the Philadelphia Academy of Surgery. The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens."

The Minnesota State Board of Health says: "Camp sanitation, personally supervised by army surgeons and enforced under military law, has failed to protect soldiers who were not immunized against typhoid. Farm hands, woodsmen, miners, sectionmen, and ditch and road crews often work under very insanitary conditions in Minnesota, for neither health nor labor authorities have legal power to enforce sanitation of camps. Therefore, all men engaged in such work, all travelers and all vacationists should protect themselves against typhoid by vaccination."

Mrs. J. E. Engstad was re-elected president of the Woman's Auxiliary of Fairview Hospital, of Minneapolis, for the sixth year at the annual meeting of the organization, which was held April 14. The other officers chosen were: First vice-president, Mrs. A. N. Bessessen; second vice-president, Mrs. L. M. Rand; recording secretary, Mrs. H. P. Grimsby; treasurer, Mrs. C. K. Naas; federation secretary, Mrs. E. J. Trovie; corresponding secretary, Mrs. O. H. Bakke. The

Auxiliary has a membership of 265, including 208 active members, 53 associate members, and 4 life members.

Thirty physicians attended the April meeting of the Upper Mississippi Medical Society, held in Bemidji. Papers were read as follows: "Modern Surgical Treatment of Infantile Paralysis," by Dr. Emil Geist, Minneapolis; "Some Methods of Study of the Heart," by Dr. H. L. Ulrich, Minneapolis; "Ectopic Gestation," by Dr. Theodore Bratrude, Warren; and "A New Method of Entering the Antrum of Highmore for Drainage," by Dr. C. F. Coulter, Wadena. Dr. J. A. Gates, of Kenyon, candidate for the Republican nomination for Lieutenant Governor, also spoke. The next meeting is to be held at International Falls in July.

The American Highway Association is asking for the practical co-operation of the country doctors in pressing the good roads movement. No one knows as well as the doctors how bad most roads are, and what an advantage, to say the least, good roads would be. If each country doctor would enlist in this great practical work and become an active evangelist of this new gospel, the effect would be almost instantaneous, and the office-scekers and politicians would flock to the cause like doves to their windows. The time for working the roads with the best results is at hand, and if the country doctors could prevail upon the people in their respective districts to take hold of the subject in earnest, the roads would all be improved before the next season begins. It is not meant that the work could be finished in a few short months; but that many of the rough places could be made smooth and that the bottomless pits could be bridged over temporarily, at least, and until permanent work could be done. That would follow once the people could see for themselves what good roads mean for their personal comfort as well as their industrial profit. Physicians are described by one of the writers in the old Spectator as "a most formidable body of men."

A very interesting program for the twenty-ninth annual meeting of the North Dakota State Medical Association, to be held at Devils Lake May 10 and 11, has been announced as follows: Invocation by Rev. C. E. Stinson; "Address of Welcome," by A. L. Johnson, Mayor of Devils Lake; "Response to Welcome," by Dr. Charles MacLachlan, New Rockford; "President's Address," by Dr. V. H. Stickney, Dickinson; "Submucous Resection of Nasal Septum," by Dr. G.

Golseth, Jamestown; "The Fat Content of Sputum," by Dr. J. W. Cox, University; "Local Anesthesia," by Dr. L. E. Daugherty, St. Paul; "School Nursing," by Miss Mary Alberta Baker, LaMoure; "Campaign for the Conservation of Senses," by Dr. J. A. Rindlaub, Fargo; "Chlorine as a Therapeutic Agent," by Dr. M. B. Hall-derson, Souris; "The Modern Treatment of Heart Disease," by Dr. C. L. Greene, St. Paul; "Unrecognized Fractures of the Wrist and Ankle Joints," by Dr. V. J. LaRose, Bismarck; "Actinomy-cosis," by Dr. N. O. Ramstad, Bismarck; "De-formities and Limited Motion in Joints Resulting from Trauma or Other Cause Modifying the Muscular Balance, With a Study of the Surgical Principles Involved in the Treatment," by Dr. C. N. Callander, Fargo; "Fracture of Semilunar Cartilages of the Knee Joint," by Dr. F. F. Griebelow, Bismarck; "Obstetrics in the Rural Com-munity," by Dr. M. D. Westley, Cooperstown; "The Relief of Pain in Labor, With Report of Cases of Nitrous Oxide Analgesia," by Dr. J. C. Litzenberg, Minneapolis; "Free Tumor Diag-nosis as a Function of the State Public Health Laboratory," by Dr. L. D. Bristol, University; "Practical Observation on Care of Feeding In-fants," by Dr. W. R. Ramsey, St. Paul; "Is In-sanity Increasing?" by Dr. W. M. Hotchkiss, Jamestown; "The Value of Fundus Examination in General Diagnosis," by Dr. M. E. Trainor, Willistown; and "Dilatation of the Stomach in Pneumonia," by Dr. A. F. Bratrud, Grand Forks.

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#### DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens Sep-tember 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medi-cine, Tulane University of Louisiana.

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### KENWOOD HOME

Miss Hattie J. Tallmadge has recently opened a home at 1976 Sheridan Avenue South, Minneapolis, for the care of convalescents and elderly people. Her home is pleasantly situated and can be easily reached by the Kenwood car line. She is highly recommended by some of our leading physicians.

### TANGLEFOOT

For over thirty years Tanglefoot has had the reputation of being the safest and cleanest fly destroyer to be found on the market. Several states have passed stringent laws regulating the sale of poisonous fly paper, and the medical profession have strongly supported this movement.

Tanglefoot is absolutely non-poisonous, perfectly clean, easily applied, and always effective, and we urge its use by the readers of this journal.

### REED & CARNICK, THE TONGUE

This company is mailing to physicians a copy of a new booklet entitled "The Tongue—An Illustrated Study." It certainly is a very interesting subject and one that has never before been so completely covered, as an individual topic, and we are sure it will be greatly appreciated by the profession. In the pages of this booklet every condition of the tongue is shown by colored plates. If you have not, for any reason, received one, write to Messrs Reed & Carnick, Jersey City, N. J.

### OCOMOWOC HEALTH RESORT

This resort, being so favorably located near Chicago and Milwaukee, is very popular at all seasons of the year. It is under the direct management of Dr. Arthur W. Rogers, as the resident physician, and he gives his personal attention to the care of all patients who are suffering from nervous and mental disorders. Oconomowoc has a great reputation for its pure water and beautiful scenery, and without doubt it excels all resorts of its size in the country. The bath departments are unusually complete and up-to-date in every respect, being constructed for the comfort and welfare of the patients. Visitors will be met at all trains when it is requested.

### CALUMET BAKING POWDER

One swallow doesn't make a summer; and one test doesn't constitute a guarantee of satisfaction. There are always a number of aspects to every article of utility, and although it may measure splendidly up to one of these aspects, if it fails in all the rest it cannot be said to be a very efficient article. "Best by every test" is the measure of efficiency. That is the measure by which Calumet Baking Powder excels. Chemically, physically, physiologically, and domestically, it fulfills all the demands of modern science and art. It is chemically correct, physically pure, physiologically wholesome, and domestically efficient and dependable. If you can think of any other quality that ought to characterize a first class baking powder, no doubt the manufacturers will see to that, too. Personally, we can't. It looks to us as if a

baking powder that can make good on those four claims is about as nearly perfect as a baking powder can be. However, you know the old proverb—"the proof of the pudding is in the eating of it." Calumet will stand that test, too.

### HEALTH PRODUCTS COMPANY

All special dishes made from or with Hepco Flour are very appetizing, in fact this flour is often preferred over all cereal flours. It is approved by the Council on Pharmacy and Chemistry of the American Medical Association, and its sales are increasing in all sections. Write the company at Waukesha, Wis., for booklet "A."

### KENILWORTH SANITARIUM

This sanitarium, located so near Chicago, is always easily reached by steam or electric lines. It makes a specialty of treating nervous and mental diseases and the institution has the reputation of being nearly perfect as regards all modern equipment. All of the buildings are attractive in appearance, having been designed by an architect after visiting all the leading sanitariums in the country. Correspondence solicited.

### MEDICAL PROTECTIVE COMPANY, FT. WAYNE, IND.

It is very interesting to note the steady growth of the business of this company throughout the Northwest. In Minnesota alone they have passed the 1,000 mark, as reported by the State Insurance Commission, and have \$150,000 deposited with the state, this being 50 per cent more than the law requires. The combined resources on Dec. 31, 1915, were over \$400,000. Out of twenty suits the company defended in this state during 1915 they won nineteen of them. The claims were from \$5,000 to \$15,000 each. A policy only costs the insured \$15 per year. As this company absorbed the Physicians Defence Company of Ft. Wayne three years ago it is now the only strong company that is writing insurance that meets with the approval of the medical men. Mr. A. B. Garber, Genl. Agt., will be pleased to give full information to all that desire the very best protection.

### SILVOL: A NOTABLE GERMICIDE

For application to mucous surfaces as a germicide, silver nitrate has long been recognized as a distinctly meritorious agent. It has had one serious drawback, however, its use in solution frequently caused irritation. Finally, as was to have been expected, the art of the chemist has overcome this objection. The combination of silver with a proteid base robs the former of its irritating effect. At the same time there is no loss of antiseptic value.

A proteid-silver preparation that is meeting with marked favor by eye, ear, nose and throat specialists, as well as by specialists in genito-urinary diseases, is offered by Parke, Davis & Co. under the name of Silvol. That this product has a number of advantages over most of the silver salts hitherto used is evident from the numerous commendatory references to it that are finding their way into the medical press. An article in point has just come under the eye of the writer and is worth noting in this connection. It appears in the December issue of the Journal of Ophthalmology and Oto-Laryngology and is from the pen of William C. White, D.D.S., Ph.G., M.D., of the University of Louisville.

Silvol is supplied in powder (ounce bottles) and in



6-grain capsules (bottles of 50). The contents of two capsules make one-fourth ounce of a 10 per cent solution. Silvol Ointment (5 per cent), for application to regions where the use of an aqueous antiseptic solution is not feasible, is also offered. This ointment is marketed in long-nozzled collapsible tubes—two sizes, designated as large and small.

#### A HANDY TIRE CHAIN

Every automobile user who has occasion to run much on country roads has had the disagreeable experience of finding himself stuck on the road where his wheels would spin around without moving the car, and where it was practically impossible to jack up the wheels so as to put on the ordinary type of chains.

A new kind of chain has recently been put on the market by the Leather Tire Goods Co., of Niagara Falls, N. Y., which is especially valuable for such occasions. These chains are called EASYON CHAINS and are attached to the spokes with a very simple and efficient fastener and can be easily applied even when one is up to the hubs in mud. In such cases three chains can be put on, one at the top, one at the front, and one at the rear of the wheel so as to give excellent traction.

Many automobilists use their tire chains continuously in wet weather because they are afraid if they do not have them on at all times they will get stuck in the mud where they cannot put them on. In this way there is excessive wear on both tires and chains. If a man has a set of EASYON CHAINS in his car, he can feel

safe to run with bare tires in wet weather because he can put the chains on in a moment under any condition.

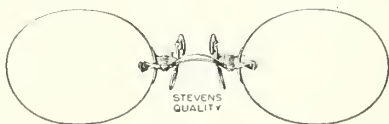
#### ATTENTION, THE S. P. C. S.!

The federal trade commission has sent to Congress a preliminary report on the rise in the price of gasoline. It draws no conclusions but presents masses of statistical information. Among the items noted in the press summary are:

Production of crude oil remained virtually stationary; gasoline contents of crude oil decreased; exports of gasoline increased from 188,000,000 gallons in 1913 to 238,500,000 gallons in 1914 and 284,500,000 gallons in 1915; for its 62 per cent of the gasoline produced the Standard Oil Company charged about 1 cent a gallon less than the "independents" charged for their 38 per cent.

The last item ought to move the Society for the Prevention of Cruelty to Statesmen to do something. Consider the hard lot of the member of Congress with a large constituency of automobile owners. Confronted with angry complaints about the "high price of gas" he is deprived of his old familiar explanation.

He cannot dismiss the complaints with the classic vituperation of the "trust"—the "octopus"—for here is the federal trade commission with its cold-blooded price tables! Truly the way of the statesman who deals in oratory meant only "for Buncombe County" grows harder every day.



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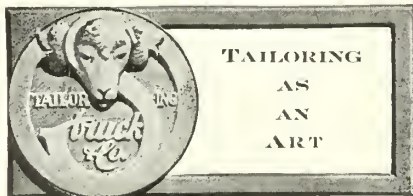
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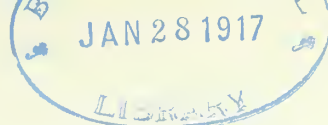
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## EMBRYOLOGY AND MEDICINE\*

By C. M. JACKSON, M. S., M. D.  
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MINNEAPOLIS

The relation of anatomy to medicine is clearly recognized. A knowledge of the normal human mechanism is an evident necessity, if its abnormal conditions are to be understood and controlled. But the human body is something more than an ordinary machine: it is a machine with a history. To know the machine you must know its history. This history, which includes all of the stages from the formation and union of the germ-cells up to the adult body, is termed *embryology*.

Embryology is therefore of great importance for medicine (1) because it enables us to understand the *normal* adult mechanism; and (2) because it furnishes a rational basis for the prevention or control of *abnormalities*, which may arise at various stages. Let us briefly consider each of these reasons.

The human adult presents a mechanism of almost inconceivable complexity. When we consider it as a cell-colony, however, it appears greatly simplified. And embryology forms a chief support of the cell-theory. No matter how large the number of cells nor how great their modifications in the adult organism, we learn through embryology that in every case they arise ultimately from a single cell, the fertilized ovum, from which by division and differentiation the adult tissues and organs are gradually formed. Thus embryology may be said to present the key to adult structure.

Embryology, however, furnishes the key, not

only to the *normal* structure, but to many *abnormalities* which occur. This phase of embryology is especially important to the physician, whose problem is the prevention and control of vital abnormality, that is, disease. Now, the factors which control the development, normal or abnormal, of the organism may be divided into two fundamental groups: the intrinsic, or hereditary, and the extrinsic, or environmental.

The intrinsic, or hereditary, factors are represented by the organization of the germ-plasm, formed by the union of the paternal spermatozoon with the maternal ovum. The paramount importance of heredity in determining the developmental process is apparent, though clearly recognized only in recent times. The potency of heredity, as compared with environment, in moulding the destiny of living organisms, is now a biological axiom. Consider what determines whether a given ovum will develop into a plant or an animal; an invertebrate or a vertebrate; a fish or a fowl; a dog or a man. In all these cases we must admit that the primary characteristics of the organism are determined by heredity, and cannot be changed by altering the environment. Even individual characteristics, such as sex, stature, pigment of skin, hair and eyes, are also in large measure similarly predetermined.

The supreme influence of heredity is evident also in the mental makeup of every individual. We know that, in a general way, mental ability and temperament are inherited. You are all doubtless familiar with the ancient doctrine of

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.

the temperaments, associated with the "humoral pathology," which dates back to the time of Galen, or earlier. Though largely discredited, this doctrine contains an element of truth, as would appear from the recent investigations of Davenport. He suggests that there are in the germ-plasm factors representing various grades of hyperkinesis (calm, nervous, choleric) and of hypokinesis (cheerful, phlegmatic, melancholic). These factors behave as though in different chromosomes, and appear to be inherited independently, so they may occur in any combination. Thus mental characteristics, as well as physical constitution, are largely determined by heredity.

Heredity also plays an important part in the occurrence of disease. In some cases, defects, such as color-blindness and congenital hemophilia, are undoubtedly hereditary in character. This applies also to a large percentage of cases of insanity and to many other disorders of the nervous system and sense-organs. In the light of our present knowledge, however, it appears that what is transmitted by heredity is usually not the disease as such, but *constitutional predisposition* to disease,—for example, cancer, tuberculosis. Evidence is accumulating to show that the hereditary transmission of such predisposition (diathesis), even in cases where the immediate cause is an environmental factor, is more important than has hitherto been generally realized.

In many cases, doubtless, both heredity and environment thus share as factors in the production of disease. In the past, however, attention has apparently been focussed too exclusively upon the environment as the cause of disease. Although this has resulted in great progress in the field of the infectious diseases, other disorders in which the hereditary factors are more prominent have been relatively neglected. Thus the practical importance of a knowledge of heredity is becoming more clearly recognized as essential to the physician; indeed, eugenics will probably play a large part in the preventive medicine of the future. The rapid advances in the science of heredity are admirably presented in the recent book by Conklin on "Heredity and Environment" (Princeton University Press, 1915).

While from the biological point of view we must admit the predominance of the intrinsic or hereditary factors, still from the medical point of view we must also recognize the great importance of environment, especially in the causation of disease. While it is true that the bounds of possibilities in development are rigidly set by heredity,

yet it is equally true that within these limits the process is controlled by environment. Since an unfavorable environment may, in countless ways and in various degrees, modify, limit, retard, or altogether prevent the process of development, it might well be argued that, from the point of view of pathology, environment is even more important than heredity.

In this connection we must bear in mind that environment is not limited to postnatal life. It is a fact not sufficiently recognized that prenatal environment is of even greater importance. We sometimes forget that the individual begins its existence not at birth but as the fertilized ovum. And it is pre-eminently during the earlier stages of development that changes in the environment are especially effective in producing disturbances in the delicately balanced organism. The available evidence indicates that practically all the monstrosities are produced at this time by changes in the chemical or, more rarely, physical environment. These changes may be due to faulty implantation of the ovum in an unhealthy uterine mucosa, or they may be due to various organic or inorganic toxins from the maternal circulation. Imperfect respiration and nutrition, on account of placental defects, may also play an important part in disturbances of the developmental process. While, broadly speaking, the organism apparently becomes more resistant as development proceeds, yet each stage appears to have its special points of weakness and liability to disorder. This is well known for the various postnatal stages of infancy, childhood, and puberty; and it is probably equally true for prenatal stages. A better knowledge of the developmental process thus becomes a necessity for advancement in prenatal pathology and hygiene.

In considering the process of development with the various associated abnormalities, it is important to remember that the essential features are due to changes in the component tissues and cells. The development of the organism with its complicated parts is merely the visible resultant of the growth and differentiation going on in its myriads of constituent cells.

These cell-changes have been summarized in Minot's doctrine of "cytomorphosis," according to which every cell during its life-history goes successively through stages of growth and differentiation, followed sooner or later by degeneration with cell-death and removal. The "how" and "why" of this process of cell-differentiation is the fundamental problem of embryology. What

causes one embryonic cell to become a gland-cell, while another becomes a muscle-cell or a bone-cell? What makes cells divide? What are the cell-changes underlying the progressive developmental stages of the embryo, fetus, newborn, infant, child, adolescent, and adult? The solution of these problems will give us a deeper insight into not only the normal cell-structure and activity but also the causes of the various types of departure from the normal. We may then be able to understand the arrest or distortion of the developmental cell-processes, producing the various organic defects and associated functional derangements. In short, these fundamental biological and medical problems are ultimately and essentially cell-problems.

Associated with, and yet distinct from, the process of embryonic differentiation is the process of growth, a subject in which I have been especially interested. More closely associated with growth is the process of cell-division. Both cell-growth and cell-division are most rapid and vigorous in the early embryonic stages, when cell-differentiation has scarcely begun; while later, when cell-differentiation becomes prominent, the processes of cell-division and cell-growth become progressively much slower. Thus, while the early embryo may double its mass in a few hours, the growth-rate decreases rapidly, so that at birth it requires about five months for the infant to double its weight. Thereafter the growth-rate continues to decrease, with an exceptional acceleration at puberty, to zero in the adult.

The growth-rate, however, is not uniform throughout the whole body. In accordance with what I have termed the "law of developmental direction," the region of greatest intensity of growth shifts in a general cephalocaudal direction. As a result, the head region is relatively largest in the early embryo, while the pelvis and lower extremities reach their greatest relative size in the adult. In any given region of the body there is, furthermore, a dorsoventral path of growth, the dorsal structures in general preceding the ventral in development.

A further analysis reveals the fact that, even in any given region, there is considerable diversity of growth-rate in the various organs. Each has its own characteristic curve of growth. Some organs (brain, liver, suprarenals) reach their maximum relative size in the embryo; other (kidney, spleen) later in the fetus; while still others (musculature) may not reach their relative maximum until in the adult stage. Similarly,

within each organ we find varying growth-rates in the component parts, tissues, and cells at different stages.

Moreover, the normal growth-rates of the various tissues and organs are changed in characteristic ways under abnormal conditions. I have recently studied the effects of inanition upon the growth of the body and of the various organs of the white rat. When weaned, at the age of three weeks, the rats were put on a restricted diet, and held at nearly constant body-weight for several weeks or months, until the control rats on full diet were about half-grown. In the retarded rats, the growth-power is not lost, but merely suspended; for on re-feeding they grow rapidly, at a rate even above the normal, so they soon overtake the controls. Whether it is possible to carry the process of starvation to a point where no growth results on re-feeding is uncertain, although Aron has apparently obtained permanent stunting in this way.

In young rats thus held at constant body-weight, the effects differ greatly upon the different organs and systems. Some organs (skin, spleen, thymus) lose markedly in weight; others (musculature and most of the viscera) remain nearly stationary; while in a third group (including skeleton, spinal cord, and eyeballs) the growth-impulse is so strong that they increase in weight at the expense of other organs, even when the body-weight is held constant. The practical bearings of these results are obvious, since similar relations probably obtain in the human species. While much of importance is known, far more remains to be discovered concerning the whole process of development, from ovum to adult, before we can be fully prepared to detect and control abnormal conditions.

Admitting the necessity for further research in the field of embryology, the question arises as to the best method by which this may be accomplished. Here, as in science generally, we may follow either of two methods: the *descriptive* method, by which we observe the phenomena as they occur in nature; or the *experimental* method, by which we attempt to get a deeper insight into the phenomena by varying the conditions and observing the effect. Each method has its advantages and its limitations. Generally speaking, science progresses most rapidly by utilizing a combination or alternation of the two. The descriptive method reveals the phenomena; the experimental method gives insight into their nature and cause. Thus in descriptive embryology



we learn the morphology of the organism and its constituent parts at various stages of development. With this knowledge as a basis, by experimental embryology we seek to learn more of the significance of these phenomena, their cause and methods of control. In experimental embryology, the results are often more brilliant, and the future possibilities are very promising; but very much yet remains to be done in the field of purely descriptive embryology. Even among the lower forms, where abundant material is easily obtained, many important stages are yet undescribed.

In human embryology, the gaps in our knowledge are even wider and more numerous, as one may realize in looking through the excellent recent manual by Keibel and Mall. In many cases, the earlier stages of organogenesis and histogenesis have been fairly carefully worked out, and the adult structure is well known, while the intermediate changes in the fetus and child remain undiscovered. My colleague, Professor Scammon, is especially interested in this intermediate field, and has organized a much-needed course in "Fetal and Newborn Anatomy" for advanced and graduate students. In general, it may be said without exaggeration that with adequate material almost every phase of human embryology could be studied or restudied with great profit to biology in general and to medicine in particular.

Lack of adequate material is perhaps the greatest drawback to progress in embryology at present. There ought to be a great collection of embryos available for study at every university. There are, however, at present but three or four noteworthy collections in this country. The collection of human embryos by Professor Mall at Johns Hopkins and that of vertebrate embryos by the late Professor Minot at Harvard are the largest and best of their kind in the world, and have been of great service. At the University of Minnesota we have made (largely through the efforts of my colleague, Professor Lee) a fairly good beginning, with a collection in both human and comparative embryology.

In the comparative collection, we have now 579 sectioned embryos of various species in different stages. They are all cut in serial sections, stained, and mounted ready for study. The following list indicates the forms, with the number of series available at present in each:

## Fishes:

<i>Petromyzon</i> .....	33
<i>Squalus</i> .....	27
<i>Amia</i> .....	51
<i>Ameiurus</i> .....	10
<i>Salmo</i> .....	3
<i>Micropterus</i> .....	18

## Amphibians:

<i>Amblystoma</i> .....	80
<i>Necturus</i> .....	11
<i>Rana</i> .....	40
<i>Bufo</i> .....	19
<i>Hyla</i> .....	17

## Reptiles:

<i>Tropidonotus</i> .....	5
<i>Vipera</i> .....	4
<i>Anguis</i> .....	3
<i>Lacerta</i> .....	14
<i>Chelydra</i> .....	18
<i>Chrysemys</i> .....	1

## Birds:

<i>Gallus</i> .....	76
---------------------	----

## Mammals:

<i>Mus</i> (norv.) .....	3
<i>Sus</i> .....	120
<i>Ovis</i> .....	4
<i>Lepus</i> .....	2

In the department collection of human embryos, we have at present about 300 specimens, including various stages from the earliest up to full term. Of these, 75 have been selected and cut into serial microscopic sections, as indicated in the following table. Following the number, m = male; f = female. The length is the crown-rump length in millimeters. The thickness of the sections is given in micra. The letter t indicates that the sections are cut in the transverse plane; s, sagittal; and c, coronal.

In addition to the general department collection, I may mention also certain special collections made by members of the staff and equally available to others for purposes of research. Professor Scammon has a series of about 60 Elasmobranch embryos, representing 9 species, of various stages in serial sections. Professor Lee has collected a series of about 400 mammalian embryos, chiefly rodents, representing 15 genera, mostly early stages cut *in situ* with uterus, and especially valuable for investigation of the early embryo, implantation, membranes, etc. Professor Johnston has an extensive neurological collection, including about 200 sectioned embryos of fishes and amphibians (*Amia*,

TABLE OF SECTIONED HUMAN EMBRYOS.

No. and sex	Crown-rump length mm.	Fixation	Sections micra	Donor	Remarks
H 1	15	?	t 12		Good.
H 2	20	Formalin	t 15	Dr. Dart	Good.
H 3	22	Zenker	t 12		Good.
H 4	8	?	?		Abnormal.
H 5 m	25	Zenker	t 15		Fair.
H 6	6	Zenker	t 10	Dr. Schludt	Fair, Incomplete.
H 7 m	20	?	t 10		Fair.
H 8 m	41	Formalin	t 12	Dr. Cheney	Excellent.
H 10 m	29	Alcohol	t 15		Fair.
H 11 m	60	Formalin	t 33	Dr. Tebbits	Poor.
H 12 f	41	Zenker	t 15		Excellent, Damaged.
H 13	7.5	Alcohol	t 15		Good.
H 14	12	?	t 10		Fair.
H 15	22	Alcohol	t 12		Good.
H 16 f	33	Zenker	t 15		Excellent.
H 17	7	Alcohol	t 10		Fair.
H 18	15.5	Formalin	t 10		Excellent.
H 19	22	Formalin	t 12		Ectopic, Poor.
H 20	6	Picro-sulph.	t 8	Dr. Cates	Poor.
H 21 f	26	Alcohol	t 15	Dr. Rose	Excellent.
H 22	19	Picro-sulph.	t 12		Good.
H 23	15	Alcohol	t 10		Fair.
H 24	19	Zenker	t 12		Fair.
H 25	2.5	Alcohol	t 8	Dr. Coleman	Poor.
H 26 m	65	Formalin	t 30-50		Fair.
H 28	16	Alcohol	t 10	Dr. Abbott	Ectopic, Normal.
H 29 m	26	Alcohol	t 12	Dr. Hynes	Excellent.
H 31 f	93	Formalin	t 100	Dr. Adair	Pelvis only.
H 32 f	?	Formalin	t 100	Dr. Adair	Pelvis only (fetus).
H 33 f	113	Formalin	t 100	Dr. Adair	Pelvis only.
H 34 f	120	Formalin	t 100	Dr. Adair	Pelvis only.
H 35 f	170	Formalin	t 100	Dr. Olson	Pelvis only (unfinished).
H 36 f	210	Formalin	t 100	Drs. Law and Cates	Pelvis only (unfinished).
H 37 f	174	Formalin	t 100		Pelvis only (unfinished).
H 38 f?	63	Bouin	s 50	Dr. Bell	Unfinished.
H 40	5.5	Formalin	t 12	Dr. Comstock	Abnormal.
H 42 m?	65	Formalin	s 50	Dr. Baier	Unfinished.
H 48	27	Bouin	t 12	Dr. Camp	Excellent.
H 49 f	126	Bouin	t 100	Dr. Dezell	Pelvis only (unfinished).
H 51 m	35	Formalin	s 50-200	Drs. Milnes and Jackson	Irregular.
H 54 f	150	Formalin	c 50-t 100	Dr. Jackson	Head (c); trunk (t) (inc.).
H 55 m	65	Formalin ?	t 45-50	Drs. Hume and Jackson	Fair.
H 56 f	24	Alcohol	t 20	Drs. Scholz and Jackson	Good.
H 57 f	31	Formalin	t 20	Drs. Graham and Jackson	Good.
H 58 f?	17	Formalin	t 20	Drs. Douglas and Jackson	Excellent.
H 60	11	Alcohol	t 20	Drs. Lewis and Jackson	Excellent.
H 61	6	Formalin	t 10	Drs. Kuhn and Jackson	Abnormal.
H 62	16	Formalin	s 20 ?	Drs. Pond and Jackson	Fair.
H 63	18	Alc.-form.	t 20	Drs. Douglas and Jackson	Poor.
H 64 m	23	Alcohol	s 20 ?	Drs. Ryland and Jackson	Fair.
H 65	7.3	Alcohol	t 10	Drs. Vandeventer and Jackson	Poor.
H 67	5	?	s 10		Poor.
H 68	11	Bouin	t 15	Dr. Johnson	Excellent.
H 79	1-2 ?	Alcohol	s 8	Dr. Conley	Ovary, Abnormal.
H 87 f	65	Formalin	s 50	Dr. Bray	Unfinished.
H 97	14	Alc.-form.	t 20	Drs. Lewis and Jackson	Abnormal.
H 98 m	30	Bouin	s 15	Dr. Adair	Good.
H 99 f	26	Alc.-form.	t 20 ?	Drs. Graham and Jackson	Fair.
H 100 f	43	Formalin	s 20	Dr. Thompson	Good.
H 102 f	95	Formalin	s 50	Dr. Potter	Unfinished.
H 108 f	30	Zenker	t 10	Drs. Norris and Jackson	Head damaged.
H 115 m	50	?	s 40	Drs. Anler and Jackson	Fair.
H 121 m	46	Formalin	t 60	Drs. Herndon and Jackson	Fair.
H 122 m	39	Formalin	t 20 ?	Drs. Herndon and Jackson	Fair.
H 134	12	Formalin	t 20	Dr. Clark	Fair.
H 203 m	177	Formalin	s 100	Dr. Potter	Unfinished.
H 259 f	30	Formalin	t 20	Dr. Adair	Fair.
H 260	18	Formalin	t 15	Dr. Phelps	Good.
H 266 m	168	Formalin	s 100	Dr. Potter	Unfinished.
H 275	183	Zenker	s 100	Dr. Johnson	Unfinished.
H 277	2 ?	Alc.-form.	t 8	Dr. Adair's collection	Pathological.
H 278	2 ?	Formalin	t 8	Dr. Adair's collection	Pathological.
H 279	4 ?	Formalin	t 8	Dr. Adair's collection	Pathological.
H 280	13 ?	Bouin	Unfinished	Dr. Adair's collection	Pathological.
H 281	10 ?	Formalin	Unfinished	Dr. Adair's collection	Pathological.

Ameiurus, Lepidosteus, and Amblystoma), also a series including 15 stages in the development of the human brain (Flehsig's method) up to the new-born.

I take this occasion to thank most heartily the numerous physicians who have kindly contributed the specimens in this collection. Permit me to

point out to you that here is an excellent opportunity for the physician to render a valuable aid by preserving and forwarding to the laboratory any specimens which he may obtain. The laboratory man is not in medical practice, so the progress of our knowledge of human embryology depends largely upon the interest and co-operation

of the practitioner. All specimens, normal or abnormal, will be gratefully received, and placed in the collection. Containers with preserving fluid (10 per cent formalin is best for general purposes) and return postage will be sent upon request. A brief clinical history, including the last menstrual date, is urgently requested, and will add greatly to the value of the specimen. We will gladly make report if desired as to the probable age of the embryo, pathological condition, etc.

The collection is rapidly growing, and with your co-operation we hope to make it equal to the best. Our laboratory is always open to any of you who may desire to use its collections and other facilities for research, and we will also upon request loan the specimens to any qualified investigator for study elsewhere. It is our hope that in this way the collection may serve a valuable purpose in promoting research work in embryology, and thereby contribute to the advancement of medicine.

#### DISCUSSION

DR. T. G. LEE (Minneapolis): Dr. Jackson has covered the general scope of the topic under discussion so thoroughly and so well that little remains to be added.

In the same way that the older ideas regarding the structure of the body, dating back to the time of Galen, were revolutionized and purely theoretical considerations replaced by *fact*, due to the work of Vesalius and his successors, so in more recent times it is through the youngest daughter of Anatomy, namely, Embryology, that we are at last coming to a proper understanding and interpretation of the mass of data which has accumulated relating to the structure of the human body,—man's place in nature, his relationship to other forms of life, and many of the otherwise obscure problems of physiology and pathology.

Embryology is a recent science. It is less than one hundred years (1827) since Karl von Baer laid the foundation of modern embryology in his classical work in which he said that "Embryology is the torch bearer in the study of all organic forms." The truth of that statement has become year by year more certain. For years embryology did not form a definite part of the medical-school curriculum; and, when it was studied, the chick was the form commonly used. This was natural. Collections of mammalian embryos were to be found in but few laboratories, and human embryonic series were still more rare. Two methods of study have been employed: one, that of tracing out step by step the formation and growth of organs and body of a selected type as chick, frog, etc.; the other method, that of tracing the development of a given organ or part in as many different forms as possible all through the vertebrate scale. Both methods have yielded splendid contributions to our knowledge of the subject, and shed much light on human development. We must not forget that there still remain very important gaps in our observational knowledge of human growth: no one has yet seen segmenting human ova, the details of the pas-

sage into the uterine cavity and implanation of ovum, the differentiation of the germ layers, the formation of the fetal envelopes, and other important facts are still unrecorded for the human subject. Thus we are still dependent on comparative material. Until some fifteen years ago it was supposed that the human ovum attached itself to the surface of the uterine mucous membrane, and then placentation was originated; but by the rare good fortune of being able to make an immediate autopsy on a girl who suicided in a Viennese Hospital, Dr. Peters was able to secure what was at that time the youngest known human embryo. This specimen demonstrated that the previously held view of the formation of the placenta was erroneous, and, instead, that the ovum perforated the epithelial layer and formed a new decidual cavity in the uterine connective tissue. Embryologists at once saw that here was something similar to the previously described method of implantation of the ovum in the guinea-pig, which was unique for mammals as then known, and that in all probability the guinea-pig would throw light on the unknown steps in man. This illustrates the importance of the study of other forms as applied to human development. Since then it has been our good fortune to find two other mammals with this same type of implantation.

If we are ever to be free from our dependence on the study of other animal forms in teaching human embryology, it will be when the profession realize that the laboratory men are entirely dependent on them for the needed material. Thousands of embryos are lost every year, which, if saved, would aid in solving many of the still unknown or unsettled problems of human development.

Dr. Jackson has pointed out many of the important applications of embryology to medicine, and Dr. Wilson, who follows me, will be able to give numerous examples of the importance of a knowledge of embryology in surgery and pathology.

The question that has been repeatedly put to each of you here by some anxious parent has been, "Is it a boy or a girl?" Many of you have had put to you that other question by an anxious patient, "Will it be a boy or a girl?" The laboratory man is constantly asking himself, "Why and how does it become a boy or a girl?"

We all grow from a single microscopic cell. We all change from a common indifferent stage to one or the other sex for reasons still unknown. These and many other important problems in medicine can be at last solved by the laboratory worker, if you will do your duty, and furnish him with the needed material.

DR. L. B. WILSON (Rochester): We are all inclined to think of the embryologist as a man surrounded with subject matter that is very dead. But, if we could attend the annual meeting of the Association of American Anatomists,—for there is reported the work of the embryologists,—we would find their studies very much alive. The reason for this lies largely in the fact that the embryologists are going back to the beginning of things.

A great many theories in medicine are based upon supposed facts that are clearly "hot air." As a profession we are still taking our hats off to many that have absolutely no basis in fact. And many of us are incapable of determining whether the support of the theories we approve of are facts or not. So far as



morphology is concerned the anatomist and embryologist is capable of making such a determination, and he is doing so with a high degree of accuracy.

What are we, as a profession, doing to aid in his work? The truth, which Dr. Lee tells us, is most regrettable, that never yet has there been placed in a scientific collection a human embryo in the earliest stages of development. Gentlemen, we are like South

African savages feeding diamonds to their pet ostriches. We have thrown away thousands of the finest embryologic specimens. We should at least sufficiently feel our responsibilities to the science of medicine to save the embryologic material that we are now destroying. That is the plea Dr. Jackson is making to the medical profession in Minnesota, and I wish to second that plea in the most emphatic manner.

## EXTRA-UTERINE PREGNANCY WITH ESPECIAL REFERENCE TO EARLY DIAGNOSIS, WITH REPORT OF SEVEN CASES\*

BY D. L. SCANLAN, M. D.

VOLGA, SOUTH DAKOTA

While extra-uterine pregnancy is not considered of very frequent occurrence by many physicians, its occurrence is of sufficient frequency to place it among the important surgical conditions which the general practitioner meets. The frequency with which I have met this condition in the last six years, in a few instances while operating for other intra-abdominal conditions, has led me to believe that it is very much more common than has generally been supposed. I believe the increasing frequency of this condition is generally admitted by surgeons of large experience. Noble states that from 3 to 4 per cent of all his laparotomies are performed on cases of extra-uterine pregnancy. Then, again, there are men of wide experience who claim the condition to be more apparent than real, perhaps because of the greater proficiency in diagnosis, or possibly with a better opportunity to investigate conditions which otherwise might escape observation, due to the increasing frequency with which the abdomen is opened. My own very limited experience, and the statistics of men of very wide experience, certainly tend to show a decided increase in this affection in the last decade. It would seem possible that this may be a result of a greater prevalence of gonorrheal infection in women.

Unfortunately, the etiology of ectopic gestation is still a matter of doubt; however, I think nearly all agree that it is caused by some interference with the downward passage of the fertilized ovum on its way from the ovary to the uterus.

One of the most frequent predisposing factors is salpingitis which causes a destruction of the ciliated epithelium of the tube, increases the con-

nective tissue, and produces attachment of the tube, interfering with peristalsis, and distorting and obstructing its lumen because of adhesions thus formed, or resulting from acute peritonitis. Tumors within the tube wall, or arising from other structures, may by pressure narrow the lumen of the tube. There are various causes given, but they all lead to one conclusion, namely, some interference with the advance of the ovum.

Experiments on some of the lower animals, and a few observations on human beings go to show that conception takes place outside the uterus, on the ovary or in the tubes: consequently, every pregnancy in its early stages is extra-uterine. A question to be solved is why the fertilized ovum does not oftener develop in the tubes. It is very evident that, until the etiology of extra-uterine pregnancy is better understood, very little or nothing can be done towards lessening its occurrence. By the general practitioner, however, much may be done to prevent its disastrous consequences by an earlier recognition of the condition, because we must admit that sufficiently definite symptoms follow its establishment to make possible a diagnosis in a majority of instances previous to the pronounced symptoms accompanying or following tubal rupture or abortion. Inasmuch as these cases invariably consult the general practitioner first, he is the one to be on the alert for the earliest possible suspicion of the existence of this condition, and that means being wideawake at all times to the outstanding features present in all or most cases.

On account of the relative supposed infrequency of it, there is a pronounced tendency, I believe, among physicians, to set this condition aside as unimportant. Note that I say "supposed" infrequency. I say so because I insist

\*Read at the 34th annual meeting of the South Dakota State Medical Association at Sioux Falls, May 18-20, 1915.

that this is not nearly so rare a condition as has been generally believed. We may also conclude that it sometimes happens that tubal abortion and absorption may take place without giving rise to any pronounced clinical manifestation whatsoever; and the patient and physician may be unaware of its existence, unless it may be found while operating for some other intra-abdominal condition.

The symptoms at first may closely simulate those of normal pregnancy. There is usually a cessation or irregularity of menstruation; however, too much reliance cannot be placed on this particular symptom, for many cases of tubal rupture occur before a period is missed. Where there is a cessation of menstruation it is usually re-established, irregular as to time and quantity, of a tarry, sticky, smeary nature, said by some observers to be characteristic. As the sac becomes further developed it causes pain of a cramp-like or boring nature, not unlikely to suggest threatened abortion of a normal pregnancy. There is, as a rule, following the pain, a dark sanguineous discharge, very probably due to rupture of the gestation sac. This is the class of cases in which an early diagnosis seems imperative to save the patient from the usual disastrous results following rupture. The external genitalia show the same as in normal pregnancy; the cervix is soft; the os is slightly open and the uterus is larger and perhaps displaced laterally, depending on the size of the tumor and its location, which may be on either side or even before or behind the fundus. The tumor is described as doughy, and is slightly, if at all, movable, and usually exceedingly tender.

An entirely new set of symptoms appears on rupture, and they are so characteristic that it seldom leaves one in doubt as to the diagnosis. I do not know of any other condition with which the physician has to deal that gives a clearer clinical picture than that of ruptured tubal pregnancy. What could be more characteristic of internal hemorrhage in a woman previously comparatively well, than to be suddenly seized with severe abdominal pain, so severe as to cause faintness, rapid, feeble pulse, sometimes pulseless at the wrist, with face blanched, lips white, covered with a cold clammy perspiration, with subnormal temperature and excessive thirst? Fortunately, not all cases of ruptured ectopic pregnancy present such alarming symptoms.

It is of the highest importance for the practitioner to bear these facts constantly in mind, and to remember that the victim of this accident

is not, as a rule, struck down without warning, and that she has premonitory symptoms or warnings, commonly of such a decided character as to cause her to consult her family physician. I feel that this is a fact not sufficiently appreciated by the general practitioner.

The mental picture which most of us have of extra-uterine pregnancy, is of a woman suddenly struck down with violent internal hemorrhage. To be sure, cases of this nature do occur, but they are the exception rather than the rule. When they do occur they are certainly easily enough recognized, but properly and fully to appreciate the gravity of the slower cases a thorough understanding of the condition and an active and alert mind are necessary.

In those cases where the ovum is implanted at or near the fimbriated extremity of the tube, and is discharged thence into the abdominal cavity, it constitutes a tubal abortion without as much lesion in the normal maternal structures as in tubal rupture. In either case the symptoms will differ somewhat, mostly in degree rather than in kind. Of course, as would be naturally expected in tubal rupture, the gravity of the symptoms would be much more apparent, depending upon the amount of tubal destruction and the size of the vessels ruptured. In tubal abortion we may expect the pain, shock, and hemorrhage in a less degree, therefore producing a clinical condition much less acute and alarming, but perhaps no less dangerous, because a hemorrhage may be equally great, but slower, and the development of a hematoma, with adhesions and possible infection, may threaten the patient's life no less than the former condition.

The recognition of the early signs and symptoms of extra-uterine pregnancy constitutes the imperative need of the diagnostician while dealing with that class of cases. Here the clinical history is of first importance, and should command our first attention, for usually the symptoms enumerated by the patient will lead us to suspect a normal pregnancy. The woman will usually give a history of salpingitis or peritonitis, or a rather long interval since the previous pregnancy, if any, or some vague pelvic distress, usually described as "female trouble."

I am satisfied that, in the cases where we take a complete clinical history, combined with a careful physical examination, we should arrive at a proper diagnosis in a large majority of them; however, I am aware of the difficulty attending such diagnosis at times, especially when this trouble is associated with other pelvic or abdom-

inal trouble; or in atypical cases where it simulates other troubles, a differential diagnosis may be hard or impossible. The conditions that most closely simulate tubal pregnancy are a gonorrheal salpingitis, appendicitis, or perforation of any of the hollow abdominal viscera. I think possibly one of the most frequent mistakes is in appendicitis, this probably being due to the relative frequency of tubal pregnancy in the right tube; however, there are features that stand out prominently in each of these conditions which should lead us rightly in a differential diagnosis. But I cannot see that it is so important as that all these conditions properly come under the care of the surgeon and are amenable to surgical treatment only. I would rather make a dozen mistakes in differential diagnosis than to make one untimely in extra-uterine pregnancy, and lose my patient.

At one time it was the general belief that tubal abortion seldom occurred, but, according to statistics of the present day, it is shown that tubal abortion is the rule and tubal rupture the exception. As heretofore mentioned, absorption of a small embryo may take place in the tube, or, when extruded, in the peritoneal cavity, or, as it sometimes may happen, it may go to full term.

I believe all agree that the proper treatment of extra-uterine pregnancy lies within the field of surgery; however, there is a diversity of opinion as to the proper time for surgical interference after rupture. There are many surgeons who advise immediate operation after rupture; then, again, there are others who advise delay until the patient rallies from the shock following hemorrhage. The majority of surgeons advocate immediate operation in all cases, regardless of the time of rupture; and it appears to me to be good surgical sense, for I cannot imagine a surgeon of the present day standing idly by and seeing a patient's life-blood ebb away, any more than when secondary hemorrhages occur after operations, or accidents of any character.

#### CONCLUSIONS

1. Early diagnosis is practicable.
2. The disease is fairly common.
3. In proportion to its danger, an early diagnosis is important.
4. Too much stress cannot be laid on the importance of eternal vigilance in the matter on the part of the family physician.
5. Immediate suspicion of ectopic gestation should be entertained upon the complaint of sudden pelvic pain in a woman of child-bearing age.
6. Whether the diagnosis is certain or doubt-

ful the case should be hurried into the surgeon's hands with all dispatch.

#### CASES

CASE 1.—Mrs. E., aged 32, quadripara, was admitted into the Volga Hospital, Sept. 8, 1909. She complained of pain in the right iliac region, and had a dark hemorrhagic vaginal discharge of about four weeks' duration. She gave the following history: her last monthly period occurred July 20, 1909; five weeks later she had irregular abdominal pains; attacks of pain occurred at irregular intervals, and were followed by a feeling of faintness; three days before admission she was seized with a very severe attack, which was followed by collapse.

On very careful bimanual examination we discovered a soft, doughy swelling about the size of a hen's egg on the right side of the uterus. The uterus was enlarged, and pushed to the left.

Diagnosis, ruptured extra-uterine pregnancy. Abdominal section Sept. 8, 1909. Tube with sac removed. Recovery followed.

CASE 2.—Mrs. R. C., aged 30, one child of 11 years, was admitted to Volga Hospital July 30, 1913, under the service of Dr. Edward, giving the following history: missed two periods, abdominal pain, and vaginal discharge. July 29 sudden severe abdominal pain and collapse. The following afternoon she drove eight miles to Dr. Edward's office, where a diagnosis of ruptured ectopic pregnancy was made on the basis of the characteristic symptoms of internal hemorrhage with a large pelvic hematoma. She was removed to the hospital, and operated on immediately. The right ovary and a tumor were removed, also left tube in a condition of chronic pyosalpinx. Prompt and uneventful recovery followed.

CASE 3.—Mrs. S. D., aged 24, mother of one child two years old, was referred to the Volga Hospital by a physician of a neighboring town for an appendectomy for chronic appendicitis. On admission on June 9, 1910, she gave the following history: for about two years she has had considerable stomach trouble, followed by soreness and tenderness in the right iliac region, becoming very much more acute the last four days; menstruation, regular and normal.

Physical examination did not reveal anything abnormal with the pelvic organs. Nothing could be found except on deep palpation in the right inguinal region, extending down well into the pelvis; tenderness and rigidity. Her temperature was 100°, and pulse, 90.

Diagnosis, chronic recurrent appendicitis. On abdominal section June 10, I was very much surprised to find, when I opened the abdomen, that a small quantity of dark blood escaped. I proceeded at once to find out the source of the hemorrhage, and found it came from the right tube, which contained a small tumor the size of an English walnut, which proved to be an ectopic gestation. The tube and sac were removed, and also the appendix, which was bound down by strong adhesions, and showed evidence of recent inflammation. Recovery followed.

CASE 4.—Mrs. J. H., aged 29, quintipara, youngest child sixteen months. She consulted me Jan. 30, 1910, regarding a pain she had in her right side, and furnished the following history: menstruation was regular until Dec. 2, when she had her last period; on Jan. 3 she was



taken with rather severe abdominal pain, which lasted for about fifteen hours, and was followed in two days by dark hemorrhagic vaginal discharge. From Jan. 3 to Jan. 30, she had frequent severe pains, and on three or four occasions she fainted.

On opening the abdomen, the right tube showed a tubal abortion. There was considerable free blood in the abdomen, with a paratubal hematocoele and adhesions. The gravid tube and blood were removed. Recovery followed.

CASE 5.—Mrs. E., aged 30, had five children, was admitted to the Volga Hospital Nov. 20, 1914, complaining of pain in the right iliac region, and vaginal discharge. She gave the following history: her last child was fifteen months old; menstruation has been irregular since the birth of the last child; last period was on Aug. 15. On Nov. 15 she was taken with a very hard abdominal pain, and passed into a state of collapse. She made her own diagnosis of appendicitis. This attack was followed by rather frequent colicky pains, which occurred at frequent intervals. When I saw her she had all the signs of internal hemorrhage. I advised immediate operation, which she accepted.

On opening the abdomen a large quantity of free blood escaped. The gravid tube and blood-clots were removed. The patient made a good recovery. The diagnosis was made of ectopic pregnancy from the clinical history and physical examination.

CASE 6.—Mrs. T. M., aged 25, was admitted into the Volga Hospital under the service of Dr. N. K. Hopkins. The patient gave the following history: had one child seven years old, menstruation regular until seven weeks ago, since such time it has not appeared; has had pain and pelvic distress for three weeks, dark foul-smelling vaginal discharge following the advent of pain.

Bimanual examination revealed a soft doughy tumor to the right of the uterus, the size of a hen's egg. The uterus was enlarged and pushed to the left. Diagnosis, extra-uterine pregnancy. Abdominal section. Gravid tube removed. Recovery followed.

CASE 7.—Miss A. H., aged 20, was admitted into the Volga Hospital Nov. 10, 1912, under the services of Dr. Geo. Burleigh. She gave the following history: her monthly periods had always been regular, except the last, which was overdue about three weeks; about twenty-four hours before entering the hospital she was taken with a very severe pain in the right iliac region. This was followed by a rather profuse hemorrhagic vaginal discharge, vomiting, and faintness. On admission her temperature was 100°, and pulse, 90; her appearance rather pale.

On bimanual examination a soft doughy tumor to the right of the uterus could be felt; and the uterus was slightly enlarged and pushed somewhat to the left.

A tentative diagnosis of extra-uterine pregnancy was made, and the abdomen was opened. The right tube was the seat of an extra-uterine pregnancy of about six weeks. The tube and sac were removed. Recovery followed.

#### DISCUSSION

DR. W. R. BALL (Mitchell): I think the writer is to be complimented on his excellent paper, and also to be congratulated on the masterly way in which he handled these seven cases.

In listening to the history of the cases operated on,

the similarity of the symptoms will be noted, which gives us the tripod or sequence of symptoms which may be said to go with this condition. First, we have pain, which is usually sharp and comes on suddenly, on either the right or the left side, which is due to hemorrhage into the tube. Sometimes it is due to hemorrhage into the free peritoneal cavity. The external hemorrhage is not very excessive, but the flow is dark and sticky and murky. It is very suggestive, however. The flow is the second most important symptom; the third is shock. This usually gives us a clew to the condition, especially if we take pains to get a clear history.

The differential diagnosis can be made clearly from appendicitis by the differential blood-count. There would be a leucocytosis without any difference in the number of neutrophils. The other symptoms are nausea, vomiting, and the consequent anemia.

The time to take care of these cases is when you make the diagnosis, if you can make a diagnosis. Before rupture it is possible that the test for pregnancy would help us; and after rupture, as after the rupture of any bleeding vessel, an operation is demanded at once. These cases if properly handled and early enough usually make a favorable recovery. (Applause.)

DR. C. S. BOBB (Mitchell): I want to congratulate the doctor on his excellent paper and to emphasize the fact that operation, when we have made a diagnosis, is the proper procedure to pursue. I believe all surgeons are agreed upon that now. When there is a rupture, it is not altogether shock that we see: it is the fact that there is hemorrhage. We often have a rupture, and that will bleed so profusely into the abdominal cavity, that the pulse will run up to 160 or 170, and still there will not be the sweating and all the other symptoms of shock, but simply a rapid pulse. Surely, in any other intra-abdominal hemorrhage we would not wait, but we would attend to it immediately. Out of 36 or 37 cases that I have operated on I have not had a single death, and the majority have been after rupture. Some of them have been brought in ten or fifteen miles, in the winter time, so that I believe that while that is not a sufficient number upon which to base statistics, still the majority of the surgeons throughout the country have had a very low mortality, not any more than you would have in any other clean case.

DR. A. E. SPALDING (Luverne, Minn.): This is a very interesting subject to me. During the past summer I operated on a woman for the second time for extra-uterine pregnancy. Four years ago I was called to a farmhouse, and the physician had made a diagnosis of rupture of an ectopic gestation. I found the woman blanched, in a dirty farmhouse, and with nothing to do with,—no sterile towels and no preparation. We used an ordinary wash boiler, in which some towels were boiled. The woman was in collapse,—very pale and her pulse was 130. The abdomen was opened, and double handfuls of clots were turned out. Of course, the tube was reached and clamped before the clots were removed. The tube was removed, and she made a rapid recovery.

This same woman was brought to the hospital in Luverne last summer with an extra-uterine pregnancy, and suffering from hemorrhage. The same operation was done, and the other tube removed. I supposed that this was rather uncommon, but in one of the numbers of the Journal of Surgery and Gynecology a short time ago a doctor from Grand Rapids related his experience, and said that it was quite common for

extra-uterine pregnancy to occur twice in the same subject.

The doctor has not said anything regarding the slow ruptures that often occur. You will find all the symptoms of extra-uterine pregnancy,—the pain and the flowing which he speaks of,—which simulates an ordinary abortion. Oftentimes you will find a hardened mass back of the uterus, though the patient has had no excessive amount of hemorrhage, and there is no shock. Those cases, I think, can very well be treated by vaginal incision and turning out the clot, but there is the necessity of always being prepared to open the abdomen in case of the occurrence of severe hemorrhage. (Applause.)

DR. F. A. SPAFFORD (Flandreau): I would like simply to report a case that I had some years ago of a co-existent extra-uterine pregnancy and an intra-uterine occurring in an Indian woman. This was in 1895, if I remember correctly. I was called by a Dakota Indian, who came up from the Reservation and asked me to see his wife who was in labor. She was thirty-eight years old, and had never been pregnant before. She was a large, well-developed woman, and had been in labor over twenty-four hours. There were two or three old squaws sitting around, and she was laboring strenuously to give birth to a child.

Examination showed a child with the left occipito-anterior presentation, and with the head well down. I immediately applied forceps and delivered her of a dead child. Then I palpated the abdomen and found another child, and waited for the pains to occur, and finally the placenta came away. I waited a short time; no more pains occurred; I could feel the child, easily palpable. I made another examination, and found nothing in the uterus. I passed my hand up into the uterus and found nothing there. I sent for a colleague, who came out there, and we got all ready to do a laparotomy in one of those Indian tepees. I think God that day was on the side of that woman. When we were all ready the husband refused, and the woman also flatly refused to have the operation. The next day the extra-uterine child died. I examined the woman once or twice a year for several years afterward. I saw this woman only four or five months ago. She is a woman now of sixty-odd years of age. There is just a small lithopedium remaining of that extra-uterine pregnancy. It was a new one to me at the time, a twin pregnancy, one extra- and the other intra-uterine, which went to full term. Upon looking up the literature I find that there are quite a number of such cases reported. (Applause.)

DR. W. A. KRIESEL (Watertown): I want to report one case which came to my notice about three years ago. It was a young woman who developed amenorrhea and pain, and apparently hemorrhage, and then recovered. Her father was a physician. He had made an examination, and was unable to determine just what the condition was. I was called in consultation, made an examination, and found a large mass on one side of the pelvis, but the woman was up and around. She did not seem to be inconvenienced in any way. There was a mass there that was somewhat tender; and I was at a loss to make a diagnosis at the time. There was no hemorrhage or any sign of hemorrhage, no vaginal hemorrhage. I advised that they had better call in another man, and they did so. We both decided that in all probability there was a fibroid or probably a

cyst that seemed to extend fairly well across the pelvis. At any rate, we decided that it was an operative case, and we told them so. They immediately made arrangements to go to Rochester. I afterwards received a letter from Dr. Charles H. Mayo stating that there was a double ectopic gestation, and that it was the first one they had ever had. (Applause.)

DR. R. E. FARR (Minneapolis): I have operated for a second ectopic gestation four years after the first one; and in looking over the literature I find that second ectopic gestations are so frequent that a large percentage of surgeons, a surprisingly large percentage, advocate the removal of both tubes in the presence of an ectopic gestation.

DR. E. W. JONES (Mitchell): In regard to the question of tubal pregnancy involving the other tube at a later date: it seems very plain that the pathology answers the question sufficiently. The ectopic pregnancy is usually due to some destructive inflammatory lesion, such as gonorrhea or puerperal infection, that distorts the lumen of the tube, destroying the cilia and thus preventing the passage of the ovum into the uterus. This applies to one tube, and we have every reason to believe that both tubes are involved in the primary inflammatory process, to a greater or less degree, either by direct infection or continuity of tissue.

I think as much as possible of the free blood and clots should be left in the abdomen, as it is re-absorbed and acts the same as, or better than, the normal salt solution that you always give the patient. The blood-vessels and tissue take it up freely and rapidly, and in my own experience I have had no trouble with it at all, and I make an extra effort to leave it all in the peritoneal cavity.

Immediate operation in tubal rupture is always indicated except in one condition, and that is the primary acute vomiting period. It is well to wait a few hours for the vomiting to stop; for, if you do operate during this stage, you will likely have a very stormy time with your patient.

DR. D. L. SCANLAN (closing): I have nothing further to add to my paper, but there were a few points brought out in the discussion which I wish to comment upon. Dr. Jones speaks of leaving blood clots in the abdomen in these cases after laparotomy, thereby acting in the same way as a normal saline solution given the patient. This does not seem to me to be consistent with good surgery, as those large clots take from one to several months for absorption, acting in the meantime as foreign bodies in the abdomen, thereby causing extensive adhesions; besides being a possible danger of acting as foci of infection, which may later cause suppuration and extensive peritonitis.

Dr. Spalding speaks of vaginal incision in cases of slow rupture as being the operation of choice. There seems to be some diversity of opinion among surgeons regarding this procedure; however, I believe this route is not selected as frequently now as it was in former years. It has too frequently happened when vaginal incision was attempted that it had to be abandoned for abdominal section because of sudden profuse hemorrhage or some other pathological condition being present which made abdominal section imperative. The abdominal incision places the surgeon in a better position to deal with any or all conditions present, and, therefore, I think it should be the operation of choice in all such cases.



## A STUDY OF THE ABDOMINAL WALL IN ITS RELATION TO HERNIA\*

BY EARLE R. HARE, A. B., M. D., F. A. C. S.

MINNEAPOLIS

Superficiality is everywhere present as a marked characteristic of the present day. It has invaded our own profession, and seriously interfered with our proficiency. Twentieth-century momentum is not conducive to thoroughness, and, as a consequence, we neglect, largely, fundamentals.

An accurate knowledge of anatomy is the foundation upon which every successful internist or surgeon must build.

Much of the pathology which comes to the surgeon's attention is found in the abdominal cavity, so that the invasion of this cavity is of daily occurrence. It would seem, therefore, that a minute knowledge of the structure of the abdominal wall be most essential to every operator, but the most casual observation shows that such is not the case.

It is easy enough to pass through the abdominal wall in quest of the pathologic condition within, but quite a different matter to make an anatomically correct section which will leave the function of these structures unimpaired in future years. The surgeon, intent on immediate technic and success, is likely to disregard the post-operative stage and ultimate success.

The structure of the abdominal wall is mechanically correct. It is composed of five pairs of muscles on each side, together with their aponeuroses and sheaths.

It is interesting to note that the external oblique passes downward and inward, a direct continuation of the external intercostals; that the internal oblique passes upward and inward, the same as the internal intercostals; that the transversalis passes horizontally across the abdomen beneath the obliques.

These muscles are strapped down by the long, ribbon-like recti and pyramidales, passing from the symphysis pubis to the costal arch. This perfect mechanical arrangement of muscle fibers, when re-inforced by the aponeuroses and sheaths, comprises a most effective barrier to the protrusion of any of the viscera within.

Beneath the abdominal muscles we find a more or less well-developed layer of connective tissue, known as the extra-peritoneal fat, by means of which the peritoneum is loosely attached to the overlying structures.

The peritoneum lines the entire abdominal cavity, and covers the viscera. All of the abdominal viscera are fixed to the posterior abdominal wall by connective tissue, or suspended by blood-vessels from it. In the lower portion of the wall, we find the extraperitoneal tissue greatly increased, and the peritoneum very loosely attached in consequence. In this region we likewise find, first, the urachus passing from the fundus of the bladder to the umbilicus; second, on either side of the urachus, the obliterated hypogastric artery, passing upward on the lateral wall of the pelvis to the outer margin of the rectus muscle, and then upward and inward to the umbilicus; third, the deep epigastric artery passing upward and inward from the center of Poupart's ligament, to enter the posterior surface of the rectus muscle. These three structures lie immediately external to the peritoneum, and form on either side of the urachus the three inguinal fossæ,—namely, the lateral, the mesial, and the internal.

The mesial and the internal correspond to Hesselbach's triangle, and are intimately associated with direct inguinal herniæ. The lateral corresponds closely to the external inguinal ring, and is associated with indirect inguinal herniæ. There is a well-known adaptation of the abdominal wall to the viscera within and of the viscera to each other. This is due to the fact that the abdomen is an air-tight cavity, and the external atmospheric pressure maintains the wall in this accurate contact with the viscera. There is no unoccupied space within the abdomen; hence we see that the normal intra-abdominal pressure must constantly be neutralized by the normal muscular tone of the abdominal wall, in the prevention of herniæ.

In this connection, a brief description of the nerves of the abdominal wall may be of use. These constitute the anterior divisions of the lower six dorsal and the first lumbar nerves. These nerves emerge from the spinal cord through the intervertebral foramina, and each passes forward in the subcostal groove of its corresponding rib. These nerves are essentially motor, and they supply the abdominal muscles. They are found between the transversalis and internal oblique muscles, both of which they supply. They course mesially, and lie on the

\*Read before the Hennepin County Medical Society.



posterior sheath of the rectus, sending their branches into and through this muscle, to supply it and the overlying tissues. The seventh and eighth nerves pass slightly upward, the ninth and tenth almost directly inward, and the eleventh and twelfth downward. The first lumbar gives rise to the iliohypogastric and ilioinguinal nerves. These nerves are found between the transversalis and internal oblique muscles, passing obliquely forward, to lie just beneath the aponeurosis of the external oblique, immediately above and parallel to Poupart's ligament.

These last-named nerves send numerous motor branches to the transversalis and the oblique muscles, and thus constitute the chief motor supply of their lowermost fibers.

The causative factors in all external abdominal herniæ may be grouped under two headings: namely, first, increased intra-abdominal pressure; second, decreased resistance in the abdominal wall. The upright position assumed by man increases his intra-abdominal pressure, and is a large factor in the production of herniæ.

Occupations requiring the lifting of heavy weights, diseases accompanied by marked dyspnea, ascites, repeated pregnancies, or any condition in which there is exaggerated and long-continued contractions of the abdominal muscles, are conducive to this condition.

The resistance of the abdominal wall is frequently decreased in old people, in those with heavy pendulous abdomens, or in those who are greatly emaciated or debilitated.

The surgeon, by his uselessly long incisions, and his ruthless destruction of motor nerves, is likewise an important factor in decreasing this resistance, and is indirectly responsible for many herniæ from paralysis of the muscles. In the usual rectus incisions the surgeon hopes to avoid destruction of the nerve supply by separation of the fibers of the muscle, unmindful of the fact that the nerves lie on the posterior sheath and are severed when the sheath is divided across its fibers. If a single nerve be destroyed, its work will be done by collaterals from the nerves above and below; but when two or more branches are destroyed, the anastomoses fail, and a circumscribed paralysis of that muscle results, and is frequently followed by a protrusion of the abdominal contents.

Even more striking than the preceding statement, is the frequency of the presence of a right inguinal hernia, following the ordinary intramuscular incision for appendicitis.

The hernia may follow a non-suppurative case

without drainage where the ilio-inguinal or iliohypogastric nerve is injured, but is of much more frequent occurrence where drainage is used. The paralysis is usually due to pressure by the tube. Inasmuch as the muscles of this portion of the abdominal wall are largely innervated by these two nerves, there follows a loss of tone and a general relaxation, which is conducive to the formation of the hernia.

Houget, of New York, reports eight such cases in 190 operations, at St. Luke's hospital, and I have seen three undoubted cases in my own work, one following a suppurative, and two non-suppurative appendectomies.

We also have certain structural defects or weaknesses which act as predisposing causes. Among these may be mentioned the inguinal canal, through which the testis passes, leaving behind it the tunica vaginalis, which is very often imperfect, thus accounting for the large percentage of inguinal herniæ in males.

Mention may also be made of the inguinal and femoral fossæ, more or less concave and inviting the formation of hernia. It is now held by some men that the obliteration of the hernial sac is the most important factor in the radical cure of hernia. This fact has been utilized for the intra-abdominal closure of hernial openings during the progress of operations for other conditions, and with a marked degree of success according to reports given. The very fact that these peritoneal fossæ form concavities in the lower abdominal wall into which the viscera pass, constitutes a weakness of this portion of the abdomen that gives rise in many instances to the development of herniæ, and accounts for the difficulty with which many of them are permanently repaired.

Normally, the various mesenteries are sufficiently short to prevent a protrusion of their viscera.

We must remember that during ordinary anesthesia the sympathetic nervous system remains active, and that the prolonged handling of the abdominal viscera is likely to produce profound shock, which results in loss of tone. This in turn may be followed by a stretching of the mesentery and a ptosis of the organs, which is conducive to hernia.

We hear much these days of visceroptosis, and we must of necessity be profoundly impressed with the gravity of the symptoms occasioned by the condition. This symptom complex is frequently seen in patients who are undernourished and somewhat debilitated. There follows a relax-

ation of the abdominal wall and a consequent reduction in intra-abdominal pressure. This condition is conducive to the stretching of mesenteries, and the elongation of peritoneal ligaments, which permits of a general ptosis of all abdominal organs, and a condition most favorable to the development of hernia.

In a certain percentage of cases we find a weakness in the linea alba, above the umbilicus. This gives rise to small protusions of the extraperitoneal fat, and these not infrequently drag the peritoneum through with them, thus forming a true hernial sac, which usually contains omentum or small intestine.

In conclusion we wish to emphasize: First, that an accurate knowledge of the structure of the abdominal wall is imperative for every surgeon. Second, that increased intra-abdominal

pressure; decreased resistance in the abdominal wall, due to natural weakness in structure; the elongation of mesenteries; and the upright position; the destruction of nerve filaments in badly executed incisions, are all active factors in the causation of herniæ. Third, that every incision through the abdominal wall should be made with reference to the preservation of the nerve supply, with the idea of minimizing the danger of post-operative herniæ.

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## THE PRESENT STATUS OF IMMUNOLOGY\*

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The purpose of this paper is to treat the subject of immunology from the combined standpoints of the clinician and the laboratory worker. The first part will include a brief historical outline of immunology, and a general consideration of the theories and kinds of immunity; the second part will consist of a brief review of the immunology of specific diseases from a present-day standpoint. The prophylactic, diagnostic, and therapeutic value of different vaccines and sera will be emphasized.

#### PART I

The statement is often made by practicing physicians and surgeons that they have lost faith in the value of many of the present-day laboratory tests, especially those depending upon immunological technic. This condition is undoubtedly due to a lack of co-operation between the clinician and the laboratory man,—the former often knowing little about how the tests are made and less about their proper interpretation; while the latter is undoubtedly guilty of poor technic at times. A complete bibliography will not be attempted. For such references, recently compiled, the reader is advised to consult the valuable texts of Kolmer,<sup>1</sup> Zinsser,<sup>2</sup> and others. The

writer of this paper desires to express his indebtedness to such authors for much assistance.

*Historic.*—Edward Jenner may properly be called the father of immunology since he was the first to put the subject on a scientific basis by his determination, in 1796, that man could be protected from smallpox through the use of vaccine made from the lesions of cowpox.

It remained for Louis Pasteur, some eighty years later, to further enlarge the work started by Jenner. Pasteur and his assistants were able to isolate the bacillus that causes chicken cholera; and by injecting weak cultures of this organism he found it possible to protect healthy chickens from the disease. In the same way Pasteur found it possible to immunize animals against anthrax, a disease which was causing the death of many animals in France at that time. Following this he announced, in 1883, that it was possible to immunize man in such a way that the dread disease, rabies, could be prevented.

The other names of historic interest in the development of immunology are Metchnikoff and Ehrlich, the former demonstrating the function of the phagocytic cell in bringing about the resistant condition, and the latter showing the importance of the body fluids in protecting or curing an individual.

*Theories of Immunity.*—Early theorists deal-

\*Read at a meeting of the Grand Forks (N. D.) District Medical Society.

ing with the nature of immunity, or the resistant state, tried to explain the condition from the standpoint either of the "exhaustion" of necessary nourishment, which caused the bacteria to die, or of the "retention" of certain products formed during bacterial development which resulted in an inhibition of their growth.

The theory of phagocytosis, formulated by Metchnikoff in 1883, explained immunity as a result of the action of certain body cells, particularly the polynuclear leucocytes, in taking up or ingesting bacteria and other foreign bodies.

In 1903 Wright and his co-workers found that certain bodies, called by them "opsonins," exist in the body fluids and that they are of prime importance in preparing bacteria and other bodies for ingestion by the phagocytic cells. Wright said that an opsonin may be looked upon as the "chef" which prepares the "meal of bacteria" in an appetizing form for the hungry "mouths" of the phagocytes.

The most interesting and widely accepted theory of the cause of immunity is that of Paul Ehrlich, popularly known as the side-chain or receptor theory. Based upon his idea that every body cell has a receptor or joining portion for each and every food product which comes into the cell, he assumed that in like manner every body cell has a receptor or joining part for each and every toxic product which may come to the cell. He further postulated that, when a toxin, bacterial or chemical, united with its specific cell receptor, the receptor was injured and the cell reacted by the formation of an excessive number of receptors or side-chains, just as epithelial cells are regenerated in excessive numbers after injury. Because of the excessive formation of these newly regenerated receptors, many of them no longer have room to remain attached to the body cell, and as a result they are thrown off into the blood-stream. It is these cast-off "receptors" or "side-chains" which Ehrlich believed to be the antibodies, or immune bodies, which result from actual infectious disease or from artificial immunization with vaccines or sera. When they are free in the circulation these receptors or antibodies unite with and neutralize the toxin molecule in question, thus preventing the latter from poisoning a cell through a receptor still attached to it.

Space will not permit a detailed consideration of Ehrlich's theory. He divided these various receptors and, accordingly, the antibodies into three chief orders. The first, and simplest, order

of a cell receptor is one which has only a "haptophore" or joining part for a toxin molecule, and when cast off into the circulation is illustrated by diphtheria or tetanus antitoxin. The second order receptor has a "haptophore," or joining part, and also a "zymophore," or ferment-containing part, which acts after the union of the bacteria, or toxin molecule, with the receptor has taken place. This order of receptor when free in the circulation as an antibody, explains the action of agglutinins (as in the Widal test for typhoid) and of precipitins (as in the medicolegal identification of blood). The third order of cell receptor, also called "amboceptor," has two "haptophore," or joining parts; one has an affinity for a bacterial or other foreign cell, the other has an affinity for "complement," a substance, readily destroyed by heat, which exists in normal blood serum. Receptors of the third order are able only to join with or "anchor" a suitable substance, but have no killing or dissolving effect until re-enforced by "complement." These are the immune bodies, or "amboceptors," of cytolytic, hemolytic, and bacteriolytic sera.

*Kinds of Immunity.*—Immunity, or resistance, may be divided into natural and acquired. An illustration of the former is the species immunity, which is found in lower animals against many human diseases. Acquired immunity may be either active or passive, depending on whether a person or animal actively forms his own antibodies as a result of actual disease (or of artificial immunization), or gains his resistant condition passively by injected serum from another animal, as is the case in giving diphtheria antitoxin.

#### PART II—IMMUNOLOGY OF SPECIFIC DISEASES

*Smallpox.*—The acquired active immunity against smallpox brought about by vaccination with material from lesions of cowpox is so well known and its value so thoroughly appreciated as a preventive measure that extended discussion of the subject is unnecessary. The chief thing which should be emphasized is the great value of compulsory vaccination on a large scale. In Germany, where vaccination is compulsory, the smallpox mortality is one-seventh that of England and other countries.

*Rabies.*—Rabies is another disease for which we have a prophylactic measure of unquestioned value, the action of which is due to an acquired active immunity brought about by the injection of rabies virus which has been weakened for man by passing it through rabbits. The material used



for the Pasteur treatment is nothing more than the dried spinal cords of such rabbits. The mortality from rabies has been decreased from about 16 per cent to less than 1 per cent by the Pasteur treatment.

*Tuberculosis.*—Immunological phenomena play an important part in the diagnosis and treatment of tuberculosis through the use of tuberculin. A positive diagnostic reaction is due to a specific antibody in the body-fluids of those infected with the tubercle bacillus which acts on and splits the foreign tubercle protein, or tuberculin, used for the test. The liberated protein poison produces the local reaction of congestion and edema. The tuberculin test may be done in several different ways, most of which are well known to the profession. These are Koch's original subcutaneous test, von Pirquet's cutaneous scarification test, Moro's percutaneous ointment test, Calmette's conjunctival test, and Mendel's intracutaneous test.

For the diagnosis of obscure lesions in lungs, bone, and skin, the subcutaneous test, when carefully and judiciously used, is probably the best. Because of the possibility of severe focal reactions, with rise in temperature, the patient should be confined in bed under close observation. The von Pirquet scarification test for adults and the Moro ointment test for children are best adapted to ambulatory dispensary patients. The conjunctival test is the least sensitive and most dangerous.

So far as the value of the tuberculin diagnostic test is concerned it must be stated that a negative reaction is of more value than a positive. Unfortunately the positive test does not differentiate between an old inactive lesion and a fresh active focus. If eighty per cent of people dying from all causes show tubercular lesions, either active or inactive (upon post-mortem examination), why should not a majority of people show a positive tuberculin reaction? In the treatment of tuberculosis tuberculin is not a cure, but is merely a therapeutic help to be used in conjunction with institutional care and by trained specialists. Its value in tuberculosis of the eye, ear, bones, and lymph-glands is often greater than in cases of pulmonary tuberculosis.

*Typhoid Fever.*—The results obtained by the compulsory prophylactic vaccination in the United States Army are sufficient to warrant the general use of this method of active immunization. In 1909, when compulsory vaccination was started, the death-rate per thousand in the

Army was .28, while in 1913 there were practically no death from this disease; furthermore, no bad results have attended its use. Typhoid vaccine, according to Army standards, consists of a killed culture of typhoid bacilli suspended in salt solution so that each cubic centimeter contains one billion dead bacteria. The first dose consists of a hypodermic injection of .5 c.c. (500 million bacteria), the second dose, given ten days later, consists of 1 c.c. (1 billion bacteria), and the third dose of 1 c.c. (1 billion bacteria) after another interval of ten days. Disagreeable after-effects are rare, but may take the form of temporary general malaise, nausea, vomiting, rise in temperature, and local reaction. The immunity lasts for about two years. It is well to emphasize here that after vaccination persons will show a positive Widal reaction for variable periods of time. This necessitates the ruling out of vaccination as the source of a positive agglutination reaction in all cases of suspected typhoid fever. The use of sensitized typhoid vaccines or of vaccines introduced intravenously has been advocated by some investigators, but there is no proof that they lead to any better results than have been obtained with the ordinary vaccine injected subcutaneously.

The agglutination test, or Widal reaction, is an immunological procedure of demonstrated value. It is based on the principle that the serum of a person infected with typhoid bacilli will cause the clumping together and loss of motility of typhoid bacilli when mixed with these organisms outside the body. In order to rule out cases of "false" or "group" agglutination the serum to be tested must be properly diluted. Positive reactions rarely occur before the fifth or sixth day of the disease, and a few patients may never give a positive reaction. It must be remembered that other diseases, such as acute miliary tuberculosis, pneumonia, malignant endocarditis, and malaria, may occasionally give rise to positive reactions. The necessity for keeping in mind previous attacks of the disease and antityphoid vaccination as sources of positive Widals, has already been mentioned.

*Paratyphoid Fever.*—This is a disease, of two forms, caused by two different types of paratyphoid bacilli, which closely resemble the typhoid bacillus, except that they are not agglutinated by typhoid immune serum, and vice versa. Two years ago the writer<sup>3</sup> described an interesting and unusual case of paratyphoid fever of the A type, adding new facts concerning the pathologi-

cal anatomy of the disease and also emphasizing the necessity for agglutination tests with paratyphoid bacilli, types A and B, in cases of blood sera coming from suspected "typhoid" patients which do not give a positive typhoid agglutination reaction after repeated tests. In this connection the value of a vaccine consisting of a mixture of typhoid and paratyphoid bacilli was emphasized as an important aid in prevention.

*Diphtheria.*—It is hardly necessary to emphasize the value of diphtheria antitoxin in the prevention and treatment of this disease. The average mortality from diphtheria in cases where antitoxin has not been used is about 30 per cent, while in those cases where antitoxin has been used the death-rate is less than 7 per cent. As a rule the initial dose has been too small. It should probably be not less than 10,000 units, and often 50,000 or 100,000 units are necessary to save a patient. Bad results are not due to the antitoxin units, but rather to the anaphylactic action of the foreign protein in horse serum. Normal horse serum would give the same results in hypersusceptible patients as would antitoxic serum. These bad results occur in asthmatics or in those who complain of such symptoms as sneezing when around horses, the latter being an indication and warning of hypersensitiveness to the inhaled volatile horse protein. The injection of diphtheria antitoxin results in a passive immunity inasmuch as the antibodies are formed in the horse after this animal has received successive doses of diphtheria toxin.

The blood of many normal persons contains variable amounts of diphtheria antitoxin, and it has been found that such people are not susceptible to diphtheria. In order to detect those whose blood contains sufficient natural antitoxin and those without demonstrable antitoxin, Schick<sup>4</sup> suggested the use of the intracutaneous injection of small quantities of diphtheria toxin. A definite local reaction with redness and infiltration follows in a few hours in those who have no natural antitoxin in their blood. Such persons are the ones who need the protection of prophylactic injections of diphtheria antitoxin. Those giving no reaction have sufficient natural antitoxin, and do not need further artificial immunization. The Schick test is particularly valuable during epidemics and in institutions, for it is possible to give prophylactic doses of antitoxin only to those who really need it, thus saving in money and preventing many unnecessary cases of serum sickness.

*Tetanus.*—Little time need be given to a discussion of the value of tetanus antitoxin. Suffice it to say that largely through its use the number of deaths in the United States from tetanus has been reduced from 406, in 1903, to 3, in 1913. The present war has greatly increased the amount of tetanus; and it remains to be seen how well antitoxin has served the contending armies. The value of tetanus antitoxin dried on sterile gauze or cotton and quickly placed over fresh wounds, has recently been emphasized by Robertson<sup>5</sup>.

*Syphilis.*—In connection with syphilis there are two immunological reactions of practical importance,—the Wassermann reaction, which is based upon the phenomenon of complement fixation, and the Luetin test, which is an example of local anaphylaxis following the injection of syphilis protein, analogous to the tuberculin reaction following the administration of tuberculin.

No attempt will be made to discuss the methods of performing these tests. Let us confine our attention to the practical value of the Wassermann reaction. It may be said that a positive reaction is of more value than a negative reaction, and indicates the necessity for treatment. Besides being used for diagnosis the reaction is of benefit in determining the effect of treatment, and it has been concluded by most authorities that a patient cannot be called "cured" until the reaction is negative. A reliably determined positive reaction indicates the presence of living *treponema pallida*. The reaction appears, as a rule, about ten days before the beginning of the secondary eruption, and should be positive in 80 per cent of cases in the late primary stage. The reaction is usually positive in nearly 100 per cent of all cases of secondary syphilis which have received no medication. Untreated tertiary syphilis and the parasyphilitic diseases, such as general paralysis and tabes dorsalis, give positive reactions in from 96 to 100 per cent of all cases. In conclusion it may be said that the reliability of the Wassermann reaction depends entirely on the careful technic of an experienced laboratory worker. The clinician should not doubt the value of the reaction itself, but he should see to it that his work is done by a laboratory man in whom he has complete confidence.

*Gonorrhea.*—The treatment of gonorrheal urethritis with vaccines is far from satisfactory, although the vaccine treatment of gonorrheal arthritis and other extra-urethral infections has been more successful. Polyvalent stock vaccines have been more efficient than autogenous vac-

cines. It is certain that the greater value and wider use of gonococcic vaccines await the finding of a more satisfactory artificial culture medium for this organism.

*Scarlet Fever.*—Prophylactic vaccination and serum administration against scarlet fever have yielded good results according to some observers. The first work was done in 1905 by Labritschewsky, who used a heat-killed culture of streptococci isolated from scarlet fever patients. Three injections are used, and it is claimed that an immunity is established which remains for over a year. During epidemics in Russia over twelve hundred people have been inoculated, and not one of this number contracted the disease. Antistreptococcic serum from immunized horses has also yielded results in some instances. So far as treatment of the disease is concerned the intravenous injection of 50 c.c. or more of blood serum, obtained from convalescent cases of scarlet fever, has led to a marked improvement even in severe cases of scarlet fever.

*Mumps.*—Up to the present time this disease has been very little studied so far as its etiology and specific treatment are concerned, although Wollstein<sup>6</sup> has recently shown that the lesions of mumps may be reproduced in animals by a filtered extract of saliva from cases of acute parotitis. Also it was found that the active virus of the saliva could be neutralized by the serum of an immune animal. While the disease is not serious as a rule, from the standpoint of individual cases, it does become a problem when it occurs in epidemic form in institutions. Recent work has been done by Hess<sup>7</sup> in protecting children who have been exposed to the disease. In this method of prophylaxis about seven cubic centimeters of blood, obtained from a vein of a person who has recently had the disease, is injected into the muscles of the person to be protected. In no instance did mumps develop in children who had been exposed to the disease.

*Whooping-cough.*—It is now believed that the bacillus pertussis is the specific cause of whooping-cough. Most of the reports from clinicians who use it indicate the value of pertussis vaccine in the prevention and cure of whooping-cough. One dose usually consists of 25,000,000 bacteria. The prophylactic immunity seems to last for six months or more; and as a therapeutic measure it decreases the duration of the disease and the severity of the respiratory paroxysms. So far most of the favorable results have been obtained through the use of stock

vaccines. Undoubtedly better results might be expected from autogenous vaccines, but, like the influenza bacillus and the gonococcus, there is difficulty in growing the bacillus pertussis on artificial culture media.

*Cerebrospinal Meningitis.*—Jochmann, in 1905, and Wassermann and his co-workers, in 1907, were the first to treat this disease with the serum of horses which had been immunized with the meningococcus. This work has been extended by Flexner, so that the intraspinal injection of such serum is now looked upon as a well established therapeutic measure, the mortality rate being reduced from over 75 per cent to about 30 per cent. The use of a meningococcic vaccine has been advised in the prevention of the disease for those who are exposed during a severe epidemic.

*Cystitis and Pyelitis.*—Aside from the ordinary pus cocci which may cause inflammation, the colon bacillus is the chief cause of cystitis and pyelitis. Most of the cases of cystitis in young female children are due to this organism. Some brilliant results have been obtained in the treatment of these conditions by autogenous vaccines beginning with a dose of 50,000,000 killed bacilli.

*Pruritus Ani.*—Doubtless many physicians have seen cases of this condition in which the patient complains of intense irritation and itching around the anus, with definite changes in the quality and color of the peri-anal skin. Many suggestions have been offered to explain the cause and the best treatment of the trouble, the most recent work being done by Murray<sup>8</sup>. Working with him, the writer was able to isolate the *streptococcus fecalis* from the skin of such lesions, and was also able to demonstrate a lowered opsonic index of these patients for this organism. Furthermore, beneficial results often followed the use of autogenous *streptococcus fecalis* vaccines even in chronic cases which had yielded to no other form of treatment.

*Skin Diseases.*—No more brilliant results from vaccine therapy have been obtained than in the treatment of certain forms of skin diseases. Most of these lesions are due to a member of the staphylococcic group of bacteria, either alone or in conjunction with some other organism.

*Acne.*—Acne is caused by the acne bacillus and a staphylococcus, and may be treated with vaccine made up entirely of acne bacilli or with a mixed vaccine containing both of these organisms. The first dose should never contain over three or four million acne bacilli, and this may



be gradually increased up to ten million. If a mixed vaccine is used the initial dose of staphylococci may be 500,000,000. The best results are obtained when the vaccine treatment is combined with massage and hot applications which increase the supply of blood, with its antibodies, to the part involved in the infection. In *furunculosis* autogenous vaccines made up of staphylococci effect a cure in the large majority of cases. The dosage should begin with 100,000,000 bacteria increasing at weekly intervals to one billion. In *carbunculosi*s the same treatment gives excellent results. The doses need not be so large, and they may be given at more frequent intervals.

With the possible exception of *erysipelas* other skin diseases are not, as a rule, favorably influenced by specific immunization. In this disease streptococcic vaccine decreases markedly the toxemia, but often causes a slight local extension of the process, which, however, is much less virulent in character.

*Rhinitis and Otitis*.—Acute and chronic rhinitis have been cured by vaccines made from the infecting organism. As in many other conditions the vaccine cannot be depended upon to do all of the work, it being quite necessary to remove bony obstructions and to continue with local treatment. Moskowitz<sup>9</sup> claims that autogenous vaccines should be used in every case of carinfection from furunculosis to mastoiditis as early as possible; however, he emphasizes the fact that "all other modes of recognized aural treatment should be instituted, and kept up during the vaccine therapeutics."

*Miscellaneous*.—Cholera, anthrax, dysentery, pneumonia, and hay fever are other conditions which have been more or less successfully treated

by vaccine or serum therapy, but space will not permit of their discussion at this time.

#### CONCLUSION

In conclusion it may be said that the success of these practical applications of the different problems in the field of immunology depends upon a closer co-operation between the clinician and the laboratory man. The clinician must see to it that the proper material, or the exact infecting organism, is supplied to the immunologist. Many failures in vaccine therapy are due to the faulty technic of the clinician in using the wrong vaccine for a given case, in taking a poor culture for the preparation of a vaccine, in using too small doses of vaccine, and in an unwillingness to persist until signs of improvement are evident. The laboratory man must see to it that cultures are not allowed to become contaminated, and that the original organism is not lost in the process of vaccine preparation. He must also be sure that the dosage which he has prepared is correct, that too much heat has not been used, and that after-contamination is prevented. It must be remembered that no immunological measure either for prophylaxis, diagnosis, or treatment, is *always* successful. The immunologist does not wish to usurp the powers of the clinician, but merely desires to be the clinician's "first assistant" in bringing all possible methods to bear on the alleviation of suffering and disease.

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## PATERNALISM IN MEDICINE

A series of very interesting articles have appeared in the April and May *American Magazine*, entitled "Better Doctoring for Less Money." The article in the May issue is written by Dr. Richard C. Cabot, of Boston, a very distinguished physician and Chief of the Medical Staff of the Massachusetts General Hospital. He opens his article with reference to the world-famous clinic at Rochester, in which he recites that the patients are examined, not merely by a surgeon, but by various other specialists representing different fields of medicine. For this service he pays a certain fee, presumably, and for that sum gets whatever examination he may need. This is purely a business matter, and the fee is usually regulated by a business man. This business man is supposed to rate the patient as a credit man in a large business house rates his prospective customer. He must know from where he comes, what his business is, and what his income is. In the first instance, to determine how much the fee will be, and in the next instance to tell how good the man's credit is. Of course, this is a pure business proposition in both instances, clinically and in a commercial way, and this is the only drawback as applied to medicine,—that is, the amount of the fee to be charged.

Dr. Cabot suggests that, if a community or co-operative group of people put their heads together from a business point of view and hired a number of specialists in medicine and surgery, they would get very much better service than they now get, and would get more for their money. He further describes the difference between the private patient in a general or municipal hospital. In the latter case there is a staff in attendance and general rounds are made. Here the patient gets a better, a broader, and a more satisfactory opinion from the attending physician than does the man who asks his physician to call upon him and examine him and give an opinion. In the first instance, the hospital patient is only a patient, and he gets the services of many good medical men, and because he is only a patient or a case there is no reason for any hesitancy in expressing an opinion; but with a private patient there is often a great deal of hesitancy. First, as to how honest the physician may be, and, second, can he resist the temptation of probable continuance of the case under his personal direction, together with the probable fee that will follow?

As a solution of some of these problems, Dr. Cabot speaks of the national sickness and insurance systems of Germany and England. These are not organized for profit, but by the State itself. The result is that they furnish the poor, and probably many others who are not poor, but take advantage of an opportunity, "a cheap and comprehensive service," but do they accomplish the desired results? The great fault with the German and English systems of sickness and insurance is, that they do not center their medical service around organized groups of physicians,—that is, around hospitals. Both of these countries are still willing to let the individual doctor work out his problem among the State's insured; and Cabot suggests that, if anything of this sort is ever projected in this country, it will start with a different idea from that of Germany and England. This means practically that the State should exercise its paternal influence over the people by supplying them with medical service for a small fee. The unfortunate part of this suggestion is, that immediately politics would take a very active hand in the construction of such an organization; and, before the country knew it, the people would be committed to a system which would be not only faulty, but political, and probably very unreliable.

Doctors who make a practice of taking care

of members of lodges and fraternal societies not only cheapen themselves, but cheapen their profession, as well as their patients. No man can be expected to give conscientious and consistent service to a patient for twenty-five cents, or to offer himself as a consultant for one dollar. That is beyond the possibilities of a medical man's usual elastic conscience; and yet this is done, but, fortunately, it is becoming a rare thing for a good man who is a man of merit to permit himself to be dragged into such a combination.

Dr. Cabot calls attention, also, to the fee proposition, and enforces his opinion with that of George Bernard Shaw, who brought this question out very strongly in his book "The Doctor's Dilemma." Dr. Cabot amplifies this idea by stating that there are extraordinary temptations to the physician and surgeon to operate or attend a sick case with a fee in prospect, and that, if a man is able to resist these various temptations, he must be far above the ordinary man in virtue; and yet the writer ventures to assert that a larger number of medical men conduct their professional work with more conscience, sympathy, and care than does the ordinary business man. There are a few men in the profession who, of course, ignore every moral obligation and who make all the profit possible, but to what purpose? They exist and perhaps make a good deal of money for a time, but their commercialism eventually upsets their calculations, and they retire, or their practice leaves them as suddenly as it came.

On the whole, it seems best to content ourselves with our present methods. The educational advantages that the medical man of today receives are elevating and tend to make him a better man; and in the end he will conduct his work consistently, and with the idea that he is doing good to the people, and not with the idea that he is to accumulate a large competency regardless of the results obtained. One is always rather suspicious of the professional man who looks wholly to the commercial side of his work. He is quite apt to grow stale in medicine, although he may be richer in money and lands; and when a man once begins to show his staleness and "to run down at the heel" medically, it is not long before the people discover this fact. We would not decry or oppose any medical man or surgeon in his efforts to gain a good livelihood. He gives the most valuable time of his life to hard and compromising work. He takes responsibilities and burdens that are taxing and enervating, and he must keep in mind that he has a family to provide for. Consequently it makes but little differ-

ence how much a few professional men may get provided they give in return good service for the fees acquired.

### THE AMERICAN MEDICAL ASSOCIATION

The next meeting of the American Medical Association takes place at Detroit, Michigan, beginning June 12, and continuing to and including June 16.

Detroit has not entertained the Association for many years, and doubtless the attendance will be reasonably good, as it suggests to the weary doctor and enthusiastic reader of papers that the rail trip or the water trip will be a pleasant one. Men in the East can easily reach Detroit from Buffalo, or perhaps as easily by train from any of the eastern cities, and Detroit will probably attract the men from the Middle West; but it is doubtful whether the extreme West will contribute much to the attendance. The meeting last year in San Francisco called out most of the western medical men, but the western medical man will hesitate before he travels half way across the continent to attend a society meeting. There are many beautiful trips around Detroit, and these trips will probably attract a good many men to the Association.

There are plenty of hotels for all who may be there. The Statler, the largest hotel, with eight hundred rooms, is the general headquarters, and doubtless that will be full to overflowing, as is usually the case.

The program is still in the making, and will be published about the time this editorial is read.

There should be no excuse for a light attendance at Detroit, and every man who, by adjusting his affairs, can take a week off, will be fully rewarded for the time spent at the Association meeting. Those who have followed the attack on the American Medical Association and who are in sympathy with the opponents of the Association will probably not be present, as it has been found unwise to attempt to influence the House of Delegates. This House is very stable in its attitude, and is not lead away by flamboyant speeches, or ill-advised reformers, or sensational proclamations. Notwithstanding the many attacks to which the officers of the Association have been subjected, these men have an earnest purpose in mind and they will do their duty in spite of misplaced opposition.

The recent suit brought by the Wine of Cardui Company has been published in detail in the *Journal* of the Association, and doubtless many



men will expect to hear something sensational at the meeting of the Association. This is quite unlikely, as it is only a test case brought by a medicine firm against the effort of the Association to stamp out useless and worthless preparations.

THE JOURNAL-LANCET advises its readers who intend to be present at the meeting to secure their rooms in advance, as well as to secure their sleeping-car accommodations. It is this time in the month of June when there are many conventions in the Middle West, and particularly in Chicago. The Republican convention and the Suffrage convention will meet about the same time. That means overcrowding of hotels and railroad trains. It would be wise to start for the meeting several days before its opening date, thus avoiding crowds, and getting settled and rested before the papers are read. Many will go early to attend the Academy of Medicine, which meets two or three days before the opening of the regular session; and doubtless other affiliated or concomitant societies will meet at the same time, perhaps before and perhaps after the meeting of the American Medical Association.

#### CHARLES AUGUSTUS WHEATON

There is no man today who holds the place in the medical profession of Minnesota that belonged to Dr. Wheaton during the years of his active practice. A natural leader of men, his fellow practitioners quickly acknowledged his ascendancy and deferred to him to such an extent that no medical enterprise of importance was undertaken without securing his support; for he not only had high intelligence and excellent judgment, but he possessed also the rarer quality of self-reliance, a quality indispensable for successful leadership. Frank and outspoken in his opinions all knew just where they could find him, and even those who differed with his views respected the honesty with which those views were held and the fairness with which they were put forward. He had a right to scorn and despise all double-dealing, hypocrisy, and cowardice, because there was no place for them in his makeup.

Dr. Wheaton was a surgeon; for years he was *the* surgeon of this vicinity. The man who takes up surgery today has little idea of the difficulties that stood in the way of the surgeon when Dr. Wheaton fitted himself for the work. Today a man who wants to practice surgery, after finishing the routine school and hospital work seeks a paid position in a clinic or becomes the assistant of an established surgeon until he has ac-

quired the training and experience that justify him in operating himself. For Dr. Wheaton there were no such opportunities. In 1877, when he finished his year's service as surgical interne in the Boston City Hospital, modern surgery with antiseptics and then asepsis was at its very beginning, and when he settled in St. Paul there was no one there who could give him instruction, hardly anyone to whom he could turn for advice. The old surgery which he had just learned, quickly fell into discredit, and the new methods reached the Northwest slowly.

In the midst of these discouraging conditions he set out to be a surgeon, a young man, whose older colleagues in this field were useful chiefly in teaching him what to avoid. Unable to spare the time to visit the clinics of the men who were rapidly revolutionizing surgery he had to teach himself the new things, to work them out for himself with such assistance as he could get from medical literature and from the points the newcomers brought as they came back from the older medical centers. That he succeeded was due to his good training, his natural fitness for surgery, his unfailing courage, determination, and perseverance. All know that he became the best known and most distinguished surgeon in this part of the country.

A peculiarity of Dr. Wheaton's work was that it combined the old school and the new. The men who were his teachers had lived in the days before anesthesia when time was an important factor in an operation. The major surgery of 1877 was limited chiefly to amputations, disarticulations, and resections. Abdominal operations were beginning to be done, but there were many of the older surgeons who refused to attempt them. The skull was operated upon only for injury. Slowness in operating was despised. Copying the models he had seen Dr. Wheaton became a smooth, finished, rapid operator, adding to these qualities sound surgical knowledge and excellent judgment, a combination that entitled him to the high position he attained.

While his professional ability won for him the admiration and respect of his fellow practitioners, his personal qualities made him an unusually large number of warm friends. His visits ever left patients happier and in better spirits. As a companion he left nothing to be desired. Cordial, generous, entertaining, he was an ideal host, guest, or comrade, and he will be held long in affectionate remembrance by those who had the privilege of enjoying his friendship.

W. D.

## CORRESPONDENCE

### PAYMENT FOR PHYSICIANS' SERVICES IN THE CONTROL OF COMMUNICABLE DISEASES IN MINNESOTA

*To the Physicians of Minnesota:*

In the past there has been some confusion connected with the payment of bills relating to the control of communicable diseases. A distinction must be made between the expense involved in the care of the family and the control of a disease.

The care of the family relates to food, fuel, etc., and has nothing to do with health problems. If the people whose movements are restricted by quarantine or isolation are in need of financial aid in matters relating to the care of the family, assistance must be looked for under the poor law.

The control of disease is a community problem and must be properly carried out for the protection of others. There is provision for this in Section 4646, G. S. 1913, which reads as follows:

"Every local board of health shall employ at the cost of the town, county or place in which it exists, all medical and other help required for the suppression of communicable diseases, or for carrying out within its jurisdiction the lawful regulations and directions of the State Board and its officers and employees; and, upon its failure so to do the State Board may employ such assistance at the local charge. But all persons whose duty it is to care for another infected with a communicable disease, to isolate such patient, or to fumigate or otherwise disinfect any article or place, shall be liable for the reasonable cost thereof to any one performing such duty, or to any county, town, or municipality paying such cost."

In this section two problems are presented: (1) authority for action, (2) payment of bills. Relative to authority for action, it is a common practice for physicians to advise the chairman of the board of supervisors of a given case and, having done so, to proceed with the supervision of the case, assuming that this is legal under the instructions from the chairman. Such procedures have, in certain instances, ended disastrously for the physicians.

Section 4643, G. S. 1913, requires the town board of supervisors, which is *ex-officio* the board of health for the township, to appoint a medical health officer, and, as I read the section, such health officer is a member of the board of health for the township.

In one township in this state, when the town board was disposed to shirk its duty in dealing with certain communicable diseases, and when the State Board of Health had threatened to step in and take charge of the situation at the expense of the township—as it has authority to do under the law—and when the town board of health had apparently yielded and was apparently acting in good faith in handling the disease a township health officer (a physician) called on another physician to administer Flexner's serum. This he did, with the result that later the town board repudiated the action of the health officer (a member of the board), and the attending physician lost not only the pay for his services but also the price of the serum, a total of over eighty dollars.

On this question of responsibility the Attorney General, under date of August 28, 1915, ruled as follows:

"Authority to obligate the town to pay such expense is vested in the board of health and not in the health officer or any individual member of the board. If the health officer assumed to act by authority of the board of health and in its behalf, the board of health could thereafter ratify his acts.

"It is apparent, however, that the town board, which constituted the local board of health, is not inclined (in this case) to ratify the employment and without such ratification the claim is not enforceable against the town."

Bearing upon another case somewhat similar, the Attorney General ruled, under date of March 31, 1916, as follows, the case also being stated:

"Given, a case of diphtheria in the country. The attending physician is called up by the chairman of the board of supervisors, who instructs him to take care of the case and, when everything is through, to disinfect the premises.

"The attending physician, having had previous experience in such matters, asks the chairman to call the town board together before he acts in such a matter. The chairman tells him that the town board is scattered; that he cannot get them together; and instructs the physician to go ahead. What is the attending physician to do?

"As I understand your past rulings, the town board cannot be held responsible for the instructions of its chairman in authorizing the attending physician to care for a diphtheria case as provided for under Sections 4646, 4647, General Statutes of 1913."

"You then submit the following inquiry:

"Is a physician in such a case justified in taking charge of the patient under the instructions of the chairman? Is the town board justified in repudiating the action of the chairman of the town board of supervisors?"

"I think that the town board, under the facts outlined by you, would have the right to ratify the action of the chairman in employing, at the expense of the township, necessary services of a physician, under Section 4646, G. S. 1913, but it could not be compelled to ratify such action."

Taking these two rulings, it would be advisable for physicians who have to do with communicable diseases in country districts, in order to protect themselves from financial loss, to insist that the chairman of the town board of supervisors call a meeting of the town board to authorize the proper handling of the case; or, if this is not possible, to insist that the chairman of the town board assume responsibility for action of the board.

Still further, physicians should have authority given them in writing for the handling of such cases. This will undoubtedly be inconvenient for the town board of supervisors in many instances, but it is law and must therefore be followed out unless the physician is willing to take the responsibility of possibly losing his account. In some instances the physician may have such confidence in the town board as to justify him in caring for the case after it has been reported, without specific action on the part of the board, but in so doing he is, of course, assuming the risk of losing his account.

In relation to the payment of bills, the Attorney General, under date of March 23, 1916, has ruled as follows:

"You state that it is a common thing for a physician

to be instructed by a town board of health to establish quarantine, carry out the necessary duties, and fumigate the premises when the time has come for the release of quarantine, and then for such physician to be told that under the section above quoted (Section 4646, G. S. 1913) he must collect the bill from the parties cared for, or those responsible for their care, if they are able to pay. In many instances the parties, irritated at the action that has been taken in establishing quarantine, refuse absolutely to pay the physician.

"You then submit the following inquiry:

"Can the township repudiate all responsibility where the individuals or those who are responsible for the individuals are able to pay; or if the physician has presented his bill against the individuals and has been refused payment, then is it the duty of the physician to turn his bill over to the township, expecting payment from that source?

"I am of the opinion, under the facts stated by you, that, when a physician is employed by a town board of health to do and perform certain services under Section 4646, G. S. 1913, the payment for such services is a primary duty of the township, the town board of which made the employment. If the individual responsible for the payment is financially able to make the same—or perhaps in any event the physician should make an effort to collect from such individual—this effort should be made in the ordinary way by presenting a bill, or by making other proper demand for payment.

"If payment is refused, I do not think it is necessary for the physician to bring an action to recover the money from such individual. After having made the necessary effort and payment not being made, then the physician should present his bill to the town board and is entitled to receive his pay. After having paid the bill, the town board can proceed to collect it from the individual responsible, if he is able to pay; if not, can put a bill in to the county for one-half of the necessary cost incurred by it in the control of the communicable disease."

I trust that these rulings may be of some service to the physicians throughout the state in the future in dealing with communicable diseases.

Very truly,

H. M. BRACKEN,

Executive Officer, State Board of Health.  
St. Paul, Minnesota, April 29, 1916.

#### FREE ANTITOXIN IN MINNESOTA

*To the Physicians of Minnesota:*

The last Legislature appropriated five thousand dollars for the purchase of diphtheria antitoxin for free distribution throughout the state. The State Board of Health has established various antitoxin distributing stations throughout the state. The health officers of the municipalities in which these stations are located are responsible for the proper distribution of this antitoxin.

Every physician is required to sign a receipt and turn it over to the one from whom he receives the free antitoxin. In many instances it appears that the physician has received the antitoxin without signing a receipt at the time. In many instances the physician receiving the antitoxin has taken the receipt with the understanding, presumably, that he would return it later. It has come to our knowledge that a considerable

amount of this antitoxin has been used and no receipt so returned for it.

Such methods cannot be tolerated. It will be necessary for the State Board of Health to show the Legislature what use has been made of the money which it has appropriated for free antitoxin. Instructions will go out from this office to those having charge of antitoxin stations to insist on the filling out of the receipt or else refuse the antitoxin.

Physicians who neglect to make out a receipt need not be surprised, therefore, if they are refused antitoxin on second request.

H. M. BRACKEN,

Executive Officer, State Board of Health.  
St. Paul, Minnesota, May 3, 1916.

## MISCELLANY

### REQUIEM

DR. T. B. S.

Archspirit of a later, nobler age,  
Archprophet of the things that are to be,  
Forger of visions for all men to see,  
Torch-bearer of a nation's heritage,  
Crusader of a newer pilgrimage,  
Bright burns thy flame with clearest clarity.  
Oh! Death, where is thy sting, thy victory,  
For here his name is writ upon life's page?

Oh, loyal heart, thine were the battle scars  
That none might know, except the chosen few  
Who bear the standards of a coming race.  
Up, up the flinty heights against the stars,  
Against the very gates of azure blue,  
While up their trails press those of yearning face.

PAUL L. BENJAMIN.

### MEMORIAL TO DR. CHARLES A. WHEATON BY THE ADMINISTRATIVE BOARD OF THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA

The death of Doctor Charles A. Wheaton marks the passing of another of the pioneers of medical education in the state of Minnesota; of one more of the men who taught—and taught well—for the love of the teaching, who reaped no other reward than the appreciation of their fellows and their students and the public repute of the professional teacher; and who gave generously of their own substance for the support of the schools they founded.

Dr. Wheaton was preeminent among those early educators in his quick instinct for professional parentage, in his love of the pupils he fathered; in his devotion to the interests of higher medical education. But he was more than a great teacher. He was a great surgeon. For a quarter of a century he stood at the very forefront of his calling in the Northwest, and all men honored his rare surgical judgment and his remarkable technical skill.

And he was a student of his profession all his working days. He loved the literature of his subject as other



men love works of art or masterpieces of music; and parting with his books, as a gift to this school, when he finally retired from all active service, he declared that he had severed the last and most precious link that had bound him to the work of his past.

But his death, to his old-time associates of this school, means still more than a demand to do homage to a great student, a great surgeon, and a great teacher of his day. Their memory stirs as to the warm hand-grasp of their old familiar friend, Charlie Wheaton they loved. To few men the affection of his fellows quickened as it did to him.

To those among us who knew and loved him, the words of eulogy are not adequately warm. His too early decline was to these men a greater sadness than is the sorrow for his passing. They remember him affectionately for all that he greatly was in the years of their mutual service and association. The shadow of his death only throws the light and the love of other days into stronger relief. In his going, they realize that at last a large lover of men, a great worker for his day and generation has gone out and gone on.

To his family, the members of the faculty of his old school,—the school he helped to found and to foster,—extend their sympathy in the fact of their signal loss and they desire to convey to them the assurance of their deep appreciation of his service in the many years when Dr. Wheaton stood shoulder to shoulder with his fellows in the arduous effort to uplift the standards of medical education in Minnesota.

#### AMERICAN MEDICAL ASSOCIATION MEETING DETROIT, MICH., JUNE 12-16, 1916

##### To the Physicians of the Northwest:

The days of travel to and from the annual meeting place of the American Medical Association, as well as the four days of the meeting, are delightful and profitable days, and the former, if indeed not the latter, are made still more enjoyable by the well established custom of the Northwestern physicians of traveling together.

This year is to be an exception only because it will be the most enjoyable of all. Detroit is not far distant; it is a city of many attractions, and the hospitality that will be extended to all visitors will make the 1916 meeting a memorable one.

Following the practice of former years, arrangements have been made with the Chicago, Milwaukee & St. Paul Railway and the Michigan Central R. R. to take care of the medical men who gather in the Twin Cities for this trip.

Arrangements will be made for special sleeper to go through without change and all the accommodations will be of the very best. The party will leave the Twin Cities on the Pioneer Limited Sunday night, June 11th, and your committee urge that you notify us at as early a date as possible of your acceptance in order that we may complete our plans for the special cars which will be for our exclusive use. The ladies are invited and a special escort will be at their service.

Further announcement will be made through the columns of THE JOURNAL-LANCET and any information desired, or number of berths desired reserved, can be obtained from the Transportation Committee, care JOURNAL-LANCET, Minneapolis, or by applying to Mr. C. R.

Lewis, C. P. & T. A., 328 Nicollet Avenue, Minneapolis, or to Mr. W. B. Dixon, A. G. P. A., C. M. & St. P. Ry., 365 Robert Street, St. Paul.

Very cordially yours,

The Transportation Committee,

DR. J. WARREN LITTLE,  
DR. W. A. JONES,  
DR. H. L. STAPLES,  
Minneapolis.

DR. W. D. KELLY,  
DR. J. L. ROTHROCK,  
DR. ARTHUR SWEENEY,  
St. Paul.

DR. H. J. ROWE,  
Cassleton, N. D.

DR. R. D. ALWAY,  
Aberdeen, S. D.

## NEWS ITEMS

Dr. H. E. Cary has moved from Minneapolis to Jenkins.

Dr. J. Rhodes has moved from Bristol, S. D., to Worthing, in the same state.

The Mounds Park Sanitarium of St. Paul graduated twelve nurses from its training-school last month.

Dr. George B. Young, of the U. S. Public Health Service, is making a health survey of Minneapolis.

Hill Crest Hospital of Minneapolis has taken out a permit to add three additional stories to its present building.

The Training-School for Nurses of the Northwestern Hospital, of Brainerd, graduated a class of four last month.

Dr. E. H. Lutz, who has been assisting Dr. J. J. Gelz, of Richmond, has gone to Chicago for postgraduate work.

Dr. H. J. Lloyd, of Lake Crystal, has moved to Mankato and become associated with Drs. Holbrook, Sohmer, and Osborn, of that place.

Dr. D. A. Herron, of Comfrey, has moved to Alta, Iowa, where he purchased the practice of Dr. C. W. Ellyson, who will locate in Waterloo, Iowa.

The St. James Hospital, of Butte, Mont., last month graduated from its training-school six nurses, who had completed a full three-year course.

Dr. K. C. Wold, of St. Paul, University of Minnesota, 1914, has gone east for a course of postgraduate work. He will be absent about two months.

Dr. G. R. Matchan, of Minneapolis, has gone to Harvard for postgraduate work. He will be gone until September 1. He was accompanied by his family.

One hundred fifty-seven nurses took the State examination for registry in Minnesota last month. This is the largest number ever examined at one time.

The Tri-State Sanatorium for the cure of tuberculosis patients will soon be opened. The Sanatorium was built by Beltrami, Hubbard, and Koochiching Counties, and is located at Puposky.

The Homeopathic and Eclectic State Associations of South Dakota held their joint annual meeting at Sioux Falls, S. D., last month. Dr. H. C. Aldrich, of Minneapolis, was on the program.

Dr. F. W. Wittich, formerly superintendent of Pokegama Sanatorium for Tuberculosis, in this state, has resigned to take up practice in Minneapolis. He has an office at 704 Pillsbury Building.

The Cass and Clay-Becker County Societies held a joint meeting at Fargo, N. D., last month. The principal address was given by Dr. Van Es, of the North Dakota Agricultural College, on "Immunity."

The Midway General Hospital, of St. Paul, has dropped the word "General" from its name. A campaign is under way for raising \$100,000 for the hospital, which will be made a charitable institution if the plans are carried out.

On May 1 Dr. Carl A. Traeger became a member of the firm of Drs. Haessly & Hanson, of Faribault, which firm will now be known as Drs. Haessly, Hanson, & Traeger. Dr. Traeger takes up the work of internal medicine.

The Northwestern District Society of North Dakota held its regular meeting in April at Minot, N. D. Papers were read as follows: by Dr. H. M. Erenfeld on "Peritonitis," and by Dr. L. H. Kermott on "Fractures of the Pelvis." An elaborate banquet was served in the evening.

An official "clean-up day" has been adopted by many villages and cities in the Northwest. In some cases this cleaning up is compelled by boards of health. Failure to comply with the order has the penalty of an official clean-up, which may be more expensive than the private work.

Dr. Charles Edward Weidman, of Cresbad, S. D., died in April at the age of 45. Dr. Weidman had practiced in Cresbad during the entire existence of the village. The business and professional men of the village are planning to erect a monument to commemorate the life of this beloved physician.

Twenty-six towns in Minnesota, in addition to Minneapolis, St. Paul, and Duluth, now employ visiting nurses throughout the year. In some towns these nurses do tuberculosis work, act as assistant health officers, contagious disease inspectors, and truant officers. Fifteen other towns employ nurses only during school year.

The Stearns-Benton County Society held its annual meeting last month at St. Cloud. The following officers were elected: President, Dr. William Friesleben, Sauk Rapids; vice-president, Dr. August Kuhlmann, Melrose; secretary-treasurer, Dr. J. C. Boehm, St. Cloud; delegate, Dr. James H. Beaty, St. Cloud; alternate, Dr. J. B. Dunn, St. Cloud.

The Sixth District Society of South Dakota held a quarterly meeting at Mitchell, S. D., last month. Dr. C. G. Cottam, of Sioux Falls, read a paper on "Gangrenous Cholecystitis," and Dr. Fred Treon, of Chamberlain, read one on "Early Recognition of Carcinoma of the Stomach." Both papers were fully discussed. The Society was entertained at luncheon by the local medical men.

Dr. Charles A. Wheaton, of St. Paul, died on April 29 at the age of 63. Dr. Wheaton was born in Syracuse, N. Y., and after graduating at Harvard, came to St. Paul in 1879, and was soon recognized as the foremost surgeon in the Northwest. He taught surgery in the State University for a number of years. Appreciations of Dr. Wheaton appear elsewhere in this issue.

The United States Public Health Service Health News contains the following: Sags in roof-gutters may act as mosquito breeding places; America's most valuable crop is babies; the public cigar-cutter is a health menace; the United States Public Health Service maintains a loan library of stereopticon slides; the typhoid rate measures accurately community intelligence; whooping cough annually kills over ten thousand Americans; bad housing produces bad health.

A bill that, if made a law, would handicap medical, antituberculosis, and other public-health work, and particularly the United States Public Health Service, is before the United States Senate, *S. J. Res. 120*. This bill, with a fair chance of passage, was introduced by Senator Works, of California, leader of the Christian Scientists in Congress; it is backed by other opponents of regular medicine and public health work. All individuals and organizations interested in scientific medicine and public health should write a

note of protest to their senators and representatives in Congress. They should also write the members of the Senate Committee on Public Health.

The Summer School in Medicine of the University of Minnesota will not offer this year the practitioners' courses which have been given in the past few years. In the abandonment of these courses for physicians, the School is devoting itself more definitely to the development of extended graduate courses in medicine. The session will open June 12, 1916, and will cover a period of six weeks, offering courses to undergraduate students who may desire to secure advanced standing or to make up deficiencies of work. These courses will have a definite equivalent to those of the regular session. Circulars of information concerning the Summer School may be had upon application.

#### X-RAY COIL WANTED

A 16-inch coil with mercury interrupter wanted cheap. Must be in first-class condition. Will pay cash. Address 347, care of this office.

#### FOR SALE

Half interest in or full sale of a small modern hospital with practice in central Minnesota. Excellent opportunity. Address 351, care of this office.

#### LOCUM TENENCY WANTED

Having sold my practice, I wish locum tenens work anywhere. Ten years' general practice, city and country. Address 337, care of this office.

#### FOR SALE

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### DR. G. H. SHERMAN, DETROIT

The doctor desires to call the attention of all physicians that are to visit his city this summer, either for the American Medical Meeting or on any trip, that his laboratory will be open for their inspection and he urges them to call. He takes great pleasure in sending his literature to any of the profession who apply for it. His advertisements always have something that interests the medical men.

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A small fire with explosion of gases occurred April 21st, on the top floor of one of the buildings of The Abbott Laboratories. Newspaper reports of the extent and character of this accident were grossly exaggerated. The damage was very small, consisting mainly of broken window panes and cracking of temporary partitions. The plant and machinery were injured but slightly, and the entire force went to work the next morning as usual. The Abbott Laboratories have issued a statement positively denying the newspaper reports that this firm is or has been engaged in the manufacture of ammunition or explosives.

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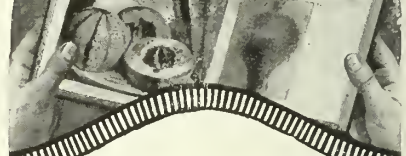
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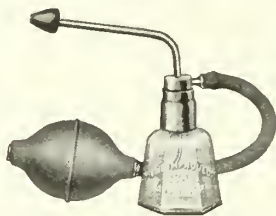
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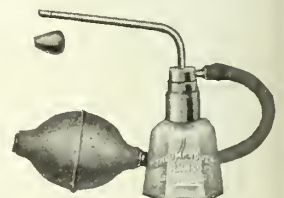
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## MEDICAL TREATMENT OF DIABETICS PREPARATORY TO SURGICAL TREATMENT\*

By DAVID M. BERKMAN, M. D.

Mayo Clinic

ROCHESTER, MINN.

In the consideration of this subject it is not my intention to enter the field of general diabetic therapeusis, but merely to take up the possibilities of this condition and to discuss the means whereby the benefits of surgery may be extended to a larger number of patients already suffering from glycosuria, including even those in whom the surgical condition does not seriously threaten life or health.

During the last few years, literature on this subject has been scant, although there have been numerous articles on the general treatment of diabetes. In 1902 Phillips,<sup>1</sup> reported a large series of cases collected from the literature showing definitely the value of pre-operative treatment. The mortality in cases without pre-operative treatment was 36.37 per cent as against 17.7 per cent in treated cases. His classification, still in use, of diabetic patients with surgical conditions, is the following:

1. Glycosuria caused by surgical lesions.
2. Glycosuria causing surgical lesions.
3. Glycosuria and surgical lesions independent.
4. Glycosuria adding to the danger of surgical lesions.

Risley,<sup>2</sup> in a more recent article, quotes extensively from Phillips, and more clearly defines the limits of these four groups. He lays stress on the fact, which is now becoming generally accepted as a working base, that an arbitrary

division between glycosuria and diabetes does not exist, or, at least, must be ignored. Also, he properly calls attention to the fact that in the examination of urine the total output of ammonia and the presence of acetone bodies are of as much importance as, if not of greater than, the sugar itself, holding that not over one gram of ammonia should be excreted in twenty-four hours, while diacetic acid should be entirely absent before a patient is accepted as a fair operative risk.

Still more recently, Addis,<sup>3</sup> in an article on this subject, has shown the insignificance of the so-called dangers of sepsis and non-healing wounds in operating on diabetic patients as compared to the real danger of coma. He has called attention to the fact that coma occurs with equal frequency after operation on patients with marked and with mild glycosuria. As a basis for this, he quotes from Karewski, who operated on 136 glycosuric patients with a mortality of 20 per cent, 78 per cent of which was from coma; of these, 50 per cent were in so-called mild diabetics. Addis emphasizes the fact that a strict carbohydrate-free diet carried up to operation increases, rather than decreases, the liability to coma. He is working out a diet scheme which may be used as a functional test for fatty acid metabolism; and he believes that in this field lies the future practical test of the operability of glycosuric patients.

Allen's<sup>4</sup> extensive researches have contributed to the advances in general treatment of diabetes;

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.

and the value of his methods seems substantiated by his results. Some of his opinions, especially concerning coma and its generative factors, appear quite radical and contrary to previously accepted ideas.

Transitory glycosuria is probably less frequent than the text-books would lead us to believe, although often conditions are present which may have been the direct cause of glycosuria. The occasional appearance of sugar in the urine of an individual should be an indication for a careful general examination and continued observation over a period of years. Riesman<sup>5</sup> has depreciated the influence of the thyroid in the production of glycosuria; and our experience would tend to bear out this view. He says that 10 per cent of pregnant non-diabetic women show glycosuria; and this appears to be a fair estimate.

The question of specific diet and relative food values and percentages is too extensive and intricate to enter into at this time. Among the most recent communications on this subject, the carefully detailed charts and therapeutic notes of Joslin<sup>6</sup> are of great practical value.

The material for the present report was drawn from the histories of the patients operated on in our Clinic during the past year in whose urine the presence of sugar was positively demonstrated. It has been our purpose to establish a method of determining the operability of such patients, and a reasonably rapid and safe course of treatment preparatory to and after operation. Our first object has been to render the patient's urine sugar-free as soon as possible; and for this no better procedure has been found than that advocated by Allen. An initial period of starvation of from forty-eight to seventy-two hours is instituted. During this period black coffee, small amounts of whiskey three or four times a day, and all the water desired are allowed. A strict diet of meat, eggs, meats of nuts, and small amounts of cream, is then introduced. This is maintained until the urine is made sugar-free, and kept so for at least two days. Ordinary green vegetables of the 5 per cent carbohydrate variety (Joslin) are then added until a fairly broad diet has been reached, still avoiding sugars, starches, and foods of every character rich in carbohydrates. The urine is, of course, carefully watched during the entire period; and, should sugar reappear, the diet is immediately cut down to the point of tolerance, and again brought up slowly. The physical condition of the patient, including the weight, is also the ob-

ject of careful daily observation. The number of days that the urine should be kept free prior to broadening of the diet varies considerably, and is influenced by the nature and extent of the contemplated operation, the anesthetic to be used, the physical condition of the patient, and the influence which the diabetes has had on his previous health. It has not seemed that a strict diet by merely rendering the urine sugar-free, decreased the risk of operation, but rather the contrary. We try to increase the patient's tolerance so that he may have a larger power of utilization of the carbohydrates, which are gradually added to his diet. Thus he may come to operation with a greater reserve supply of glycogen, of which his body will be in very great need. Definite evidence of nephritis should be an absolute contra-indication to operation, except when surgery offers the only hope of saving life.

Our use of sodium bicarbonate has become routine; and, despite the assertion of many that it is of little value, we feel that it has contributed in no small degree to the recovery of our patients. It is used in drachm doses by mouth 6 to 8 times daily, three or four days before the operation. This treatment is resumed as soon as possible after operation. Should the surgeon find it necessary to give rectal salines, soda is administered in this way also. We have on two or three occasions found it advisable to give it by intravenous injections in 5 per cent solution.

The diet after operation requires more careful selection than before. The instability of the patient's appetite during this period and his physical condition often preclude the use of the coarser articles of food from which the diabetic diet is ordinarily selected. During the first forty-eight hours after operation, which is the most dangerous period, the patients desire little, if any, food. From that time on there is no definite rule to follow. Sugar must be excluded, and starchy food kept as low as possible, although it may be necessary to allow small amounts of milk, bread, and other food containing carbohydrates, in order to maintain nourishment and aid the recuperative power.

During the post-operative observation the urine is watched carefully, although keeping it free from sugar is more difficult, and is not as important as before operation. In the examination of the urine, twenty-four hour specimens should be taken in every case, the points of special interest being the specific gravity, reaction, total amount of sugar in grams, total amount of

ammonia in grams, and the diacetic acid. In estimating the percentage of sugar, we have used the polariscope, although the method is relatively unimportant if it is a standard one and is done by an experienced person. There are several methods for the determination of ammonia, the only points to be considered being simplicity and comparative accuracy. We have found no more suitable nor satisfactory method for the estimation of the diacetic acid than the universally used ferric chloride reaction. The tests should be done in every case by the same person so that relative accuracy may be obtained.

came to operation in the Mayo Clinic; 19 were women and 7 were men. The average age was 48 years, the oldest being 60 and the youngest 21. Two patients died from operation, a mortality of 7.7 per cent. Eight patients were passing less than ten grams of sugar in twenty-four hours on an ordinary diet; and, other conditions being satisfactory, they required very little pre-operative treatment, and that largely for the purposes of observation. Two received the bulk of their treatment elsewhere at diabetic sanatoriums; the remainder were treated in our Clinic. The character of the cases was as follows:

SURGICAL CONDITION.	OPERATION.	ANESTHETIC.	NO. CASES.
Cyst of breast.....	Simple excision.....	Ether.....	1
Cancer of breast.....	Radical amputation.....	Ether.....	2
Rt. orbital cancer.....	Excision.....	Ether.....	1
Cancer of lip.....	Excision of lip and glands of neck.....	Ether.....	1
Duodenal ulcer.....	Gastro-enterostomy.....	Ether.....	1
Cholecystitis.....	Cholecystectomy.....	Ether.....	3
Cholecystitis and pancreatic cyst.....	Cholecystectomy and drainage of cyst.....	Ether.....	1
Fecal fistula.....	Dissection and closure.....	Ether.....	1
Cystic dis. of cervix.....	Excision and cautery.....	Ether.....	1
Ovarian cyst.....	Abdominal resection.....	Ether.....	1
Hydrocele.....	Resection.....	Ether.....	1
Hypertrophy of prostate.....	Suprapubic stab and prostatectomy.....	Ether.....	1
Exophthalmic goiter.....	Ligation and thyroidectomy.....	Ether.....	2
Exophthalmic goiter.....	Ligation and thyroidectomy.....	Ether and novocain.....	1
Exophthalmic goiter.....	Ligation and thyroidectomy.....	Novocain.....	1
Exophthalmic goiter.....	Two single ligations.....	Novocain.....	1
Adenomas of thyroid.....	Resection.....	Ether.....	1
Adenomas of thyroid.....	Resection.....	Ether and novocain.....	1
Senile cataract.....	Extraction and iridectomy.....	Novocain.....	1
Perineal laceration.....	Perineorrhaphy.....	Ether.....	1
Umbilical hernia.....	Herniotomy.....	Ether.....	1
Phimosis and hemorrhoids.....	Circumcision and cautery.....	Novocain.....	1
Total number of cases.....			26

The danger point in the ammonia output has been variously placed by different observers. The consensus of opinion is that it should be kept below one gram in twenty-four hours; however, one case running as high as 1.5 gm. and several running above 1 gm. have been operated on in our Clinic. I have not found that an almost strictly protein diet will greatly raise the ammonia output, although it will cause, in almost every case, some slight increase. Operations have been performed, with slight trepidation, on seven cases showing diacetic acid with no bad result. It would seem that the presence of a slight trace of diacetic acid in not an absolute contra-indication to operation.

Gilfillan<sup>7</sup> has warned us that when carbohydrates are withdrawn from the diet of healthy persons acetone and diacetic acid may appear in the urine, but will disappear after a time. He has also emphasized the fact that the administration of alkalis will neutralize the acids formed in the blood, and will hasten their elimination, and that the addition of carbohydrates to the diet will tend to inhibit their production.

During the past year 26 glycosuric patients

The operation for senile cataract was performed with the patient passing 23.5 gm. of sugar and 1.5 gm. of ammonia in twenty-four hours with a slight trace of diacetic acid. She made an uneventful recovery from her operation. Besides this patient three others were operated on while still showing slight traces of sugar; another was passing 33 gm. of sugar, and still another passing 4 gm. The duration of the longest preparatory treatment was twenty-four days, the average length fifteen days. Four patients gave a history of having previously had sugar in the urine; these four and one other gave a history of symptoms referable to diabetes extending over periods of from three months to three years.

One of the patients died after thyroidectomy, death occurring in coma within forty-eight hours of the operation. On first examination this patient was passing 90 gm. of sugar, and was looked upon as a typical diabetic; she was treated elsewhere, remaining at a sanatorium on diet for two months prior to operation, and on her return was still passing 13 gm. of sugar. The urine was otherwise satisfactory. Her condition was



believed to be serious enough to justify the risk of operation.

The other patient who died had been passing large amounts of sugar which cleared up readily with treatment. Operation revealed gall-stones and a large pancreatic cyst, two-thirds of the pancreas being necrotic and the condition of the remaining third doubtful. This patient did not die in coma; and the condition found at operation, together with the extent of surgery performed, would seem almost sufficient to cause death.

Of the 26 patients, 5 (4 exophthalmic goiters and 1 pancreatic cyst) may be placed in Group 1 of Phillips' classification; the remaining 21 without further post-operative data, which we have not at hand at this time, must be placed in Group 3. None of the cases falls into Group 2, and the entire series, according to one's interpretation, might be applicable to Group 4.

The fact that 5 of these patients were cases of exophthalmic goiter loses its significance since in the routine twenty-four hour urinalyses of 180 patients with exophthalmic goiter (October 1, 1914, to September 1, 1915) glycosuria was found in these 5 only (2.8 per cent). With most other observers, I believe that the coma after operation will develop within forty-eight hours and that it is usually induced by the anesthetic. Ether in the hands of a skilled anesthetist is the safest and most flexible of the general anesthetics. Undoubtedly, local anesthesia, where possible, is directly indicated when glycosuria is present.

Much experimental work has been done, and considerable has been written, regarding the delayed healing of wounds and the frequent development of low-grade infection following operation on patients with glycosuria. In regard to this I can only say that, so far as can be determined, in not a single instance in our series has there been the slightest deviation from the average case in the healing of the wounds.

In spite of the increasing amount of experimental work done by those investigating the percentage of blood-sugar, the practical applicability of this determination is still a matter of question. Bertrand originated a method for this determination which, on account of the large amount of blood required (10 c.cm.), has been called the "macromethod." While possibly more accurate than most other methods, it has not been satisfactory because of the amount of blood used and

the length of time necessary for the completion of the determination. To obviate these shortcomings, Bang produced a method called the "micromethod," which required a few drops of blood, and thirty-five to forty minutes only for its completion. This method is now quite generally used in laboratories throughout the country. Fitz<sup>8</sup> compared these two methods in a series of cases, and describes the technic in full. Epstein<sup>9</sup> has perfected a modification of a very simple method originated by Benedict, which requires only a small amount of blood and a few minutes time. It is a color-comparison scheme, and the percentage is read off directly on an instrument resembling a hemoglobinometer. This method has been used in our Clinic for several months; but, so far, efforts have been confined to developing the technic and establishing the approximate normal limits. We hope eventually to use the test routinely to detect the occasional patient in whom the amount of sugar in the urine, probably because of some obscure renal condition, is an unstable index as to the percentage of sugar in the blood.

While the results of treatment in this short series of cases has been fortunate, we are well aware of the serious nature of the condition, and are inclined to increase our precautions by insisting that patients be kept sugar-free for a longer period, gradually bringing them back to as near a normal diet as possible.

The treatment of the diabetic patient who is being prepared for operation is often difficult, and requires the absolute co-operation of the patient himself and of his immediate family. In many instances there has been no previous knowledge of sugar in the urine; and, after operation, these patients should be fully impressed with the seriousness of their condition and the necessity for continuation of the dietary treatment after their return home.

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# THE PREVENTABLE FIELD: RELATION OF THE PRACTICING PHYSICIAN, THE LOCAL AND STATE HEALTH OFFICER\*

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ST. PAUL

The purpose of this paper is to present, in outline form, plans for a state-wide, but co-ordinated, attack on preventable diseases and postponable deaths. Certain fields present opportunities and duties which should be more keenly appreciated by practicing physicians; and others, especially the communicable disease field, have obligations particularly urgent upon local and state health officers.

Medicine, formerly a service only to individuals, is being extended rapidly to special groups and entire communities. This may be under the guise of health departments, hospitals, dispensaries, visiting nurses, workman's compensation, or medical education of the laity. The important point is medical service for the mass of the people.

If physicians in Minnesota are at present unable or unwilling to organize and supervise various community health campaigns, before any more of the superstructure is built, they, the only foundation worth having, should be converted and enthused. Today non-medical social and sanitary experts appreciate more than they ever have before the value of medical advice. Wherever a local doctor seems disinterested or unable to think along social lines they endeavor to develop him. In the beginning it seemed necessary to start some health activities, especially tuberculosis work, without the aid or consent of the medical profession. Now, however, physicians in general have been aroused to the point of enlisting for all health campaigns. Ill-fated, indeed, are the localities where the physicians do not take an active part in public-health matters.

Certain developments which I shall enumerate are bound to occur, whether physicians as a class are against them or for them, or entirely neutral. For two reasons at least physicians should get into the game early: first, to secure justice to themselves; and, secondly, to direct these activities along medically correct lines. The problems which confront physicians today require, in addition to a thorough medical training, certain knowledge of sociological, if not of political, conditions. It is to be hoped that Minnesota

physicians will not neglect their obligations as leaders in the newer health movements.

Upon our attitude toward this subject will depend our relation to the community in the very near future. The most successful practitioner will be the one who can doctor at least minor community ills as competently as he handles the graver individual ills.

Here is an example of an urgent question that the public will demand an answer to: "Medical authorities tell us that with their present knowledge the following are preventable diseases:

Tuberculosis	.....75 per cent preventable
Infant mortality	....40-60 per cent preventable
Typhoid fever	.....85 per cent preventable
Pneumonia	.....45 per cent preventable
Diphtheria	.....70 per cent preventable
Accidents	.....85 per cent preventable
Deaths from cancer	....50 per cent preventable

"Why are they not prevented?"

Physicians will be expected not only to give the right answers, but to offer corrective suggestions.

The total number of deaths in Minnesota last year was 25,045. Of these, 11,078, or 44 per cent, fall in distinctly preventable groups.

## TUBERCULOSIS

Tuberculosis continues to head the list of preventable deaths in this state. Its victims last year numbered 2,363. Our tuberculosis mortality has not altered during the last decade. The reason is obvious: the state as a whole is not as yet adequately equipped to fight it.

The control of tuberculosis can be summed up under the following headings:

1. Reporting of all active and suspicious cases to health officers.
2. Sanatoria for the care of both advanced and early cases.
3. Visiting nurses to supervise home cases and their families, to do educational work, and to co-operate with existing agencies.
4. Free dispensaries or other free facilities for diagnosis, with paid visiting physicians.
5. Fresh-air rooms and preventoria for tuberculous and susceptible children.
6. Pasteurization of all milk.

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.



Local circumstances and density of population will naturally affect the details of this plan when applied to various parts of the state. These are the facilities, however, which should be put into operation in every community. Where State aid is lacking, volunteer organizations should endeavor to fill the gap until State aid is secured.

At present there are but four State-aided institutions operating. They have a combined capacity of about 500 beds. Only 31 counties have voted to wage war on tuberculosis, leaving 55 in which much pioneer work must be done. A total of about 1,000 beds will be available by January 1, 1917. But there were 2,363 deaths last year. Making a conservative estimate of five times as many living cases as deaths, there are 11,815 patients needing treatment today. These cases cannot be adequately cared for until more funds are available. Funds will not be available until more people of the state understand how tuberculosis should be controlled.

The resolutions passed by the State Board of Health should be the guide for the municipality, for the physician, and for the patient.

When the public understands tuberculosis as it should, these principles will be complied with by all as a matter of course, and not because it is the law. Laws and regulations, no matter how good, cannot be enforced in a democracy like ours unless a sufficient proportion of the population co-operate intelligently for their enforcement. Widespread information regarding tuberculosis, as well as the other preventable diseases, is the need of the hour.

Opportunities for propaganda on the part of practicing physicians in this field are great in all parts of the state. Many physicians, apparently, have not only neglected opportunities, but have failed in a duty. Outside the three large cities physicians have not reported tuberculosis cases with any degree of completeness. The best record was made by Washington county, where, out of 31 deaths registered last year, 16 had been previously reported as cases. This is the only county in which fifty per cent or more of the cases were reported before death. Rarely does it happen that tuberculosis is so obscure or acute that death occurs before a diagnosis has been made. Why certain physicians do not report their tuberculosis cases until they report them by death certificate I shall leave to those physicians to answer. The law requires the reporting of these cases. Doing merely what one is required to do by law, however, is not the proper attitude to foster. It is your intelligent co-operation in

the campaign that is needed. The rank and file need no laws; laws are useful as a club to be applied only to outlaws. Physicians of this state, are, it is true, reporting tuberculosis cases better each year, but there is still much room for improvement. The promptness of these reports may be taken as the index of the physician's interest in the anti-tuberculosis campaign.

#### PNEUMONIA

Pneumonia, with 2,192 deaths, is second only to tuberculosis. Although much research work has been done, more will be necessary before we can outline a definite campaign in this field. In the meantime practicing physicians, as well as health officers, should disseminate well-known facts about the prevention and cure of pneumonia, and should be on the lookout for new lines of attack. Something certainly should be done to curb a disease that annually kills one out of every 1,000 of the population. Until more definite information is available, the campaign in this field should be along the general line used against tuberculosis, including the reporting to health offices of all cases.

#### ACCIDENTS

Accidental deaths to the number of 2,051 were recorded in Minnesota last year. This gives accidents third place in the preventable death-table, tuberculosis leading by only 312, and pneumonia by 141. Basing an estimate on the relative frequency of fatal and non-fatal accidents reported to the State Department of Labor from the industrial field, there were, besides the 2,051 fatal accidents, about 205,000 non-fatal ones. In other words, accidents alone incapacitate, to a greater or less degree, about 10 per cent of our citizens annually.

A good example of what can be done in the prevention of accidents is furnished by the State Department of Labor. In the industrial field, over which it has jurisdiction, there has been since its campaign was started in 1909, a decrease of 40 per cent in fatal, and a decrease of about 30 per cent in non-fatal, accidents. This is a striking contrast with the general accident field, in which there is a gradual increase. An educational campaign which prompted employers to install safety devices, and induced employees to think of safety first, was the cause of the almost marvelous reduction in the industrial field.

The present order, which is accidents first, remedies second, and safety last, should be reversed. Such a dangerous sport as deer-hunting used to be has been made comparatively safe.



Similar results can, and should be, secured in the entire accident field.

The automobile was the greatest single offender in the 2,051 fatal accidents recorded. Most automobile accidents can be prevented. A recent investigation by one of the large railroad companies showed that 83 per cent of its accidents were due to negligence (that is, to man and methods), and only 17 per cent were due to physical causes (that is, to materials and machinery). This proportion would surely hold true for the automobile accident field. In a single month the police records of one city of this state reveal 150 automobile accidents with four fatalities. Much good might come from more publicity regarding the causes of such accidents.

The automobile is a modern invention to which we have not as yet adjusted ourselves. Formerly, entirely confined to the city, it is rapidly invading rural communities. Accidents naturally happen most frequently where there is the most travel or the most congestion. To reduce accidents in this field we need (1) the enforcement of sane laws, (2) safe cars, (3) cool-headed drivers, and (4) appreciation on the part of the non-autoing public of possible dangers.

Drowning is second only to autoing as a cause of fatal accidents. Drownings come so regularly that you expect to read of several every Monday morning, at least during the summer season. The marring of a holiday or a vacation by such accidents occurs too often. Such accidents are usually due to someone's negligence; and are at least 90 per cent preventable. Catastrophies like that of the Eastland reveal possible dangers.

The public should at least insist that bathing beaches be properly safe-guarded and that excursion boats be adequately regulated. The teaching of swimming as part of the physical education of every child should be encouraged. The art of swimming is, to say the least, healthful; its neglect is often the cause of a sudden and very premature death. Older people should never hesitate to chastise the young or the careless who are about to take chances on the water. With proper education and adequate legislation we should effect a marked reduction in this field.

Frequently, fatal accidents happen to a helpless group who, you would naturally think, were always safeguarded by both men and women. I refer to babies. Such causes as burning, drowning, suffocation, poisoning, and falls, kill

about 150 Minnesota children annually. These accidents are inexcusable. If we are to profit at all by "safety-first" campaigns, mothers should be the first to head, and babies the first to receive, the benefits. Opportunities for anti-accident propaganda will fall daily into the hands of the practicing physician. Of course, both local and state officials should assist when possible in this campaign. It is the practicing physician, however, who is on the scene at the psychological moment. Why shouldn't the public benefit by any judicious statement his experience or observation prompts him to make?

#### CANCER

Cancer held fourth place in the preventable field last year, causing 1,703 deaths. This field, of course, differs from the communicable-disease field, in which the causes are known and should be controlled. Authorities assert, however, that with our present knowledge of cancer its death-rate should be reduced at least one-half. State and county medical societies, hospitals, dispensaries, women's clubs, boards of health, and practicing physicians in every community, should co-operate in an anticancer propaganda. In the larger cities campaigns similar to those of early antituberculosis societies might be instituted. The Minnesota Public Health Association will furnish literature for public distribution at such meetings. Our Cancer Committee will also furnish speakers where local speakers are not available. Besides the literature for public distribution the Association has purchased cancer circulars of special interest to nurses and physicians, all of which will be furnished free upon request.

The cancer field at present, in this state at least, is the physician's own. In the past we have heard complaints to the effect that health officers by their official control of communicable diseases encroached upon the work of practicing physicians. The cancer field is one that most health officers are willing to turn over to physicians. This is feasible, because no police power is required in its control.

I wish to quote from a letter sent to all county secretaries by the Florida Cancer Committee of the American Society for Control of Cancer:

It is the hope of this Committee to see established in every county medical society in the state the custom of devoting at least one meeting a year to the discussion of cancer in its various phases. It has seemed wise to us to select November as the "Cancer Month," and to ask each county society to establish the custom of devoting each November meeting to a cancer symposium. Will you kindly take this matter up with your Society at

their next meeting and write us what you think of the move?

County medical societies should enter into the cancer field at once. Later, they could arrange for special meetings in the larger cities, enlisting the support of women's clubs and other organizations. If the county society and the practicing physician fail to take advantage of this opportunity they will find that some women's clubs or other organization will be making arrangements for such meetings.

#### TERMINAL DEGENERATIONS

In the group of diseases known as the terminal degenerations, much can be done to prolong life if they are detected early. In the beginning these diseases of the heart, blood-vessels, and kidneys are like incipient cancer or tuberculosis,—difficult to detect, but very amenable to treatment. The only way they can be detected early is by periodic examinations at the hands of competent physicians.

All people, especially those over 45, should secure such examinations annually. This would add five years to the average life of these individuals. The death-rate of people past 45 is steadily increasing in the United States, but is decreasing along with that of the younger-age groups in foreign countries. This can be corrected by temperance all along the line,—in eating, drinking, working, playing, and even resting. But what is temperate for one may be harmful for another. It is only by thorough physical examinations at regular intervals that one's life can be regulated to one's physical equipment.

Life insurance companies were quick to take advantage of such periodic adjustments. Similar privileges are now available to employees of banks and of many other corporations. Some day perhaps the State will pay for examinations of those not cared for by other agencies. Life insurance companies surely would not incur this extra expense unless results justified the procedure. They find that it pays; every individual past 45 should know that it pays.

The opportunities for propaganda on the part of the practicing physicians in this field are obvious. (The compensation may be more direct also than that from other fields.)

Since the State Board of Health does not have sufficient funds to conduct a propaganda as it desires to, even in the distinctly communicable field, we cannot expect it to enter this field for several years to come. Local health departments,

medical societies, and private physicians should, in the meantime, make the most of their opportunity.

#### OCCUPATIONAL DISEASES

Occupational diseases have been sadly neglected in this state. An enumeration of our industries shows nineteen different varieties of manufacture which in other states have been found to produce occupational diseases. A complete survey of the state, or of even one manufacturing center, would reveal occupational diseases in startling numbers. Formerly, this was almost entirely an agricultural state. Today about one-half of our population is clustered about manufacturing centers.

Manufacturing in our state is destined to increase even more rapidly than it has. Unless we have the safeguards employed in other states occupational diseases will increase out of due proportion. It should be remembered in this connection, that disease is not so often due to the dangerous occupation itself as to attending circumstances. Even if irritating, poisonous, and infective dusts and gases are guarded against, there is a larger group of diseases resulting from strain, pressure, fatigue, prolonged heat, excessive dampness, etc. Most of our manufacturers are voluntarily doing the best preventable work they know how. But cases are not reported; and there is no state agent to supervise, guide, and co-ordinate preventive efforts. Not until the public is better informed shall we have the enactment and enforcement of adequate occupational disease safeguards. Just why the law passed at the 1913 meeting of the Legislature has been ignored entirely by physicians, I do not know. True, this law is inadequate; and these diseases had better be reported to the State Board of Health rather than to the State Labor Department; but, if the law were complied with, even as it is, we should be able to collect data that would be useful in the framing of an adequate law.

Physicians who have had an opportunity to serve or advise the various corporations of the state have apparently done so very efficiently. This field will, in the next few years, as manufacturing increases, offer exceptional opportunities to physicians. This will be especially so if this State enacts modern occupational disease-legislation.

#### CHILD WELFARE

Diarrhea caused the death of 1,021 Minnesota babies last year. If to this number we add



the deaths due to avoidable accidents and those due to other preventable causes, such as the infectious diseases, we have a preventable field of greater moment than that of tuberculosis. Deaths among children under one year of age in Minnesota last year amounted to 4,500, or about twice the number caused by tuberculosis. The number of deaths under five years of age was 6,000, or about three times the number caused by tuberculosis. Deaths under one year of age amounted to 18 per cent of the total deaths; deaths under five years of age composed 24 per cent of the total deaths.

The primary requisite in child welfare work is a complete registration of births. Births have not been adequately reported in 38 counties.

The most accurate index to child-mortality is a comparison between deaths under one year of age for a given period and living births for the same period. This comparison is made on the basis of so many deaths per 1,000 births; and is termed infantile mortality.

One county, Winona, had both infantile mortality and deaths under five lower than the average for the state. The infantile mortality for the state was 75, for Winona county 74; for the state, deaths under five were 24 per cent of the total deaths, in Winona county 19 per cent. But of most importance, Winona county has adequate registration of births. This would indicate that some phase of child welfare work is very urgent in every county except one. Although this State as a whole has not concerned itself about infant mortality, some of its cities with voluntary organizations have set good examples. Comparative work for the entire state with its 50,000 births a year would mean the saving of about 1,550 lives. Montclair, N. J., has the enviable infantile mortality of 64; while New Zealand holds the world's record of 51.

The 38 counties in which the reporting of births is inadequate, keep Minnesota out of the United States Registration area for births. This is due perhaps, not so much to the failure of physicians and licensed midwives to report births attended by them, as it is due to unreported cases attended by unlicensed but so-called midwives. A large number, especially in rural districts, are attended by well-intended but untrained neighbor women. This is a condition that should be corrected without delay. Women in labor are entitled to expert care. If the family cannot afford it, the municipality should bear the expense.

The mother is not only entitled to expert care

during labor, but she should be allowed sufficient time in which to convalesce before beginning work again. It is well known that many women begin work too soon. This entails a danger to both mother and child, if not to the entire family. In some cases this is due to ignorance, in others to poverty. If the number due to poverty is so great that adequate relief by local agencies becomes burdensome, provision for mothers' pensions by the State should be made available. It is ignorance or, better, lack of information, however, that is the chief cause of improper care of mother and child.

As a girl, the unfortunate mother was not taught home-making in school, nor has she had the opportunity to learn it elsewhere. The school-girl who has been instructed in the fundamentals of domestic science and home-making will, when she becomes a house-wife, insist upon proper care for herself, her baby, and the entire family. Until we have rudimentary health principles taught to all school children, especially to the future house-wife, we shall not make much progress in child welfare work nor in the entire preventable field. Fortunately, some schools are now taking up these matters, as all should have done long ago.

In the meantime present needs should be met. The agency that can do this best is the visiting nurse. All of the larger, as well as many of the smaller, cities of the state are employing such nurses now. Any city of over 5,000 could employ such a nurse to advantage the entire year. Some day the services of these nurses will be available for everybody in every community, country as well as city. Although they will do many other things, their chief work will be with the school children until school closes; then with the babies and mothers. In communities where visiting nursing has been properly supervised, results have been excellent. It is the ideal preventive work; the mother is taught how to keep the well baby well. One nurse can supervise the home of one hundred well babies, easier than she can care for one really sick baby. Subsequently, by periodic visits the nurse aims to safeguard the health of the child until it is turned over to the school authorities. Then, if adequate medical supervision of the school maintains that state of health for the child until he is graduated into the ranks of the producers, he or she should, by that time, at least have learned how to preserve his or her own health. This is the system by which we must produce an intelligent citizenship which will not



only enact, but readily comply with, necessary health laws.

The Minnesota Public Health Association is ready to assist in the placing of a visiting nurse in any municipality desiring one. It will do all in its power, even to furnishing financial assistance. This might be done by paying the salary of a nurse as a prize to the cities selling a certain number of Red Cross seals; or we might allow a share of the seal receipts; or we would assist in conducting "tag days." Wherever there is sufficient local sentiment for nurses—and there should be in every community, especially in every city above 5,000 in population—plans should be completed easily for raising the necessary funds. As a rule, it is necessary for private organizations only to initiate such work, then when its value has been demonstrated, the municipality will willingly take it over.

Several cities have already asked for assistance in this work. They will be helped in the order that the requests are received: those first to come will be first served. Any city that is contemplating the employment of a nurse would save much delay and unnecessary expense by asking aid early. We find that women's clubs, commercial clubs, church societies, boards of health, physicians, progressive citizens, and associations of all kinds co-operate enthusiastically when they are shown how vital to their community this work is.

For several years past, health officers in the larger cities have been mailing suitable pamphlets on the care of the baby to every mother as soon as a birth certificate is filed. The Minnesota Public Health Association will furnish, free, a pamphlet entitled "Care of the Baby," to all requesting it. (This pamphlet ordinarily sells for 5 cents at the United States printing office.) A copy of this or a similar circular should be in every home where there is a baby. In rural districts and towns where the health departments do not distribute such literature, some other means of distribution should be found. Of course, pamphlets will be mailed anywhere upon request, but many mothers will never hear of this Association. Nurses and physicians should keep a supply of these pamphlets on hand for distribution. According to present indications many child welfare activities will be launched in various communities. Partly because the profession needs the credit, but principally to direct the work along correct lines, practicing physicians in every community should enlist early in every phase of the child welfare movement.

The Children's Bureau at Washington is mak-

ing plans for a complete check upon the thoroughness of birth-registration in this state. It should be of interest to physicians to know that in the districts already surveyed, licensed physicians were found negligent more often than were licensed midwives. Physicians can give the child welfare campaign a good start by not failing to report births. Next in importance the physician can best explain to mothers why breast-feeding is the only safe way. As a member of the school board the physician has a most advantageous position from which to direct child welfare activities. Most local boards have physicians as members. This is especially true in the smaller towns, where the physician is regarded as a leader in educational matters. Throughout the state opportunities for the practicing physician to conduct propaganda in the child welfare field are greater than in any other field. This is one field in which much preventive work is going to be done soon. Surely, Minnesota physicians will not allow this work to be taken over entirely by others.

#### SUMMARY

In a democracy like ours, legislation, no matter how urgent, is difficult to secure in advance of the average intelligence of the people. If advance legislation is secured, well-intended, but misinformed, opposition will discount or nullify its efficient enforcement. To educate and keep informed on health matters about two and a quarter million people, is the task ahead of us.

This work should begin in, and be chiefly centered about, the school. As an adjunct to the school the visiting nurse is indispensable. Next in importance to the school for the medical education of the public, comes "printers' ink," especially the daily paper.

Local and state health officers, and especially practicing physicians should co-operate with every available agency, in order to direct public medicine along scientifically correct and economically wise lines.

The Minnesota Public Health Association is the clearing house in this state for public-health problems. Its object is to formulate interlocking economic plans for propagand—lectures, exhibits, publications, etc. It offers authoritative support in local undertakings, and expects prompt response from local people concerning matters affecting the State.

NOTE.—The discussion of Dr. Murphy's paper is omitted because the discussion was upon two papers read jointly, and we have been unable to obtain the manuscript of the second paper.—THE EDITORS.

# THE EARLY DIAGNOSIS OF INTUSSUSCEPTION IN CHILDREN UNDER THREE YEARS OF AGE\*

By A. W. ABBOTT, M. D.,  
MINNEAPOLIS

The following observations were made upon twelve infants, none over three years of age, and all, except three, operated upon during the last two years. Six were operated upon during the last year. Four cases were under the care of competent surgeons who kindly furnished records; one case was operated upon by my colleague, Dr. S. H. Baxter. Seven cases came under the care of the writer.

Forty years ago, the eminent Charles West, of London, had seen only five cases of intussusception among forty thousand sick children examined by him.

In a children's hospital in a large Eastern city only twenty-seven cases were recognized in seventeen recent years.

In the cases cited in this report the diagnosis was made or confirmed in all but two by Dr. J. P. Sedgwick, Professor of Pediatrics in the University of Minnesota, or his colleague, Dr. F. C. Rodda.

This shows a decided improvement in diagnosis, especially by skilled pediatricists, but it cannot be doubted that too many babies have died, supposedly of dysentery or enterocolitis, who might have been saved by an early diagnosis and good surgery.

The age limit of three years in this report was selected, because, in infants of three years or under, the diagnosis is vastly more difficult for we cannot depend upon their intelligence, but must make the diagnosis entirely upon their condition and clinical behavior. Operations upon children over three years old, and therefore intelligent enough in many instances to aid in the diagnosis, are for this reason not included in this report.

Two were four months old.

Two were five months old.

Three were six months old.

One was seven months old.

One was ten months old.

One was sixteen months old.

Two were thirty-six months old.

Nine, or 75 per cent, were under one year.

Three cases had had a diarrhea a short time before.

The intussusception was in all twelve cases ileocecal.

All of the cases, 100 per cent, began suddenly with violent pain, apparently abdominal.

In three cases, 25 per cent, this pain was immediately followed by collapse, which continued up to the time of operation.

In eleven cases, 100 per cent of those in which this sign was noted, the initial pain was followed by regularly recurring pains. In one case we have no record.

Two at no time had blood in the stool.

One first had blood three hours after attack.

One first had blood ten hours after attack.

One first had blood two days after attack.

Three first had blood three days after attack.

One first had blood five days after attack.

Seven out of nine, or 77 per cent, either had no blood in their stools or not until after two days.

Ten, or 83 per cent, had mucous stools more or less mixed with blood as just indicated. The time when the mucus appeared in the stool could not be ascertained. In most cases it was present when the patient was first seen by the physician and before the blood appeared, and hence may be regarded as an earlier symptom than the bloody stools.

In only one case was there any fecal movement after the beginning of the attack.

Not taking into account the emptying of the stomach of food at the onset, which is almost without exception:

One vomited continuously from the first.

One did not vomit at any time.

One vomited occasionally after 12 hours after attack.

Three vomited occasionally after 24 hours after attack.

Two vomited occasionally after 36 hours after attack.

Two vomited occasionally after 4 days after attack.

One vomited occasionally after 5 days after attack.

One, no record.

This secondary vomiting was absent or did not come until after 24 hours, in nine out of eleven, or 81 per cent. In most of the cases it occurred only after the ingestion of food or drink.

Six cases had no fever. Four cases had slight fever, 100° F. and 102° F., beginning during the third day or after.

\*Read before the Western Surgical Association, December, 1915.

The cases with fever were those which were first observed several days after the attack, or had had, just preceding, an enterocolitis or bronchopneumonia.

In eight cases out of ten, 80 per cent, the abdomen was flaccid.

In two cases, slightly rigid.

In two cases, no report.

The examination for rigidity was made between the paroxysms of pain.

Abdominal tumor was noted in eleven cases, or 92 per cent. It could not be felt in one case.

In eight cases the tumor was in the left lower abdomen.

In two cases, in the ileocecal region.

In one case, in the course of the transverse colon.

It must be admitted that the presence of a tumor was rather doubtful in three of the cases, yet decided upon affirmatively before operation.

The intussusceptum in the eleven cases examined was felt, per rectum, in six, 55 per cent.

Not found in five cases, 45 per cent.

No examination in one case.

Gas explosions, loudest near the ileocecal region, were heard in all cases examined. Unfortunately no record was kept of these examinations.

In children so young it is usually impossible to say whether or not one finds a localized tenderness. Occasionally one may be certain that it does not exist. In four of our cases this absence of tenderness could be definitely established. In all of the cases there was apparently no more tenderness over the tumor than in other parts of the abdomen.

Any one who is familiar with the examination of little children perfectly understands how little one can depend on this sign.

In only two cases was there evidence of peritonitis at time of operation.

Studying these symptoms more in detail, we find that these little children, apparently in perfect health, were suddenly stricken with a violent abdominal pain and a regurgitation of the stomach contents. At this point we must recognize that the symptomatic path divides, and we have to consider two courses the disease may take.

In one, the little one recovers its cheerfulness in a few moments, and very likely begins to act as usual and perhaps, if old enough, resumes its play. In a little while it again cries out, and this alternate relief and pain recurs again and again.

In the second form the child with its first pain goes into a collapse, its pale, pinched face and rapid pulse indicating profound shock.

The first form, these recurring pains, with periods of relief, the writer regards as the most usual and conspicuous of symptoms. The outcries coupled with the pains are peculiar, and vary from a little grunt to a subdued moan. I have never heard one of these little ones scream. Especially noticeable are their accompanying grotesque gestures and positions; such as limping about with the hands on the abdomen, or boring into the pillow with the head, the child taking the knee-chest position. The child may roll, face down, on the floor or throw itself across its mother's knee. The sudden relief between the pains is equally striking.

These pains last from one-half to three minutes, rarely more than two, with a longer interval of relief.

Dr. Sedgwick made a diagnosis, in one of the cited cases, from the character of the pains alone. These pains are as regular in periodicity as labor pains, unlike those of common bellyache or colitis. They are not continuous with exacerbations as in appendicitis. They naturally resemble the pains of other mechanical intestinal obstructions, but all other mechanical obstructions are exceedingly rare in children under five years of age, hernia excepted.

In the second form, that of collapse, the child is often too weak to manifest signs of pain beyond occasional moaning. This symptom, sudden collapse, with periodic cries, should, in a child previously normal, strongly suggest the probability of an invagination of the intestine.

Next, in frequency but not in importance, are mucous stools, 100 per cent in the ten cases in which we have a record. This mucus is often streaked with blood and would be of the utmost diagnostic importance were it not for the fact that it is almost equally as often seen in dysentery. It is not one of the earlier symptoms, but earlier than the bloody stools. It is rarely noticed before the second day, and often not until the third.

The next most common symptom noticed in our cases was the presence of tumor, 92 per cent. The presence of a tumor should not be negated except after the most careful and gentle palpation, made during the interval between the pains. The time when a tumor is first noticeable can of course be seldom determined, as the child is not examined for this sign until seen by the physician, and then often not until the symptoms are



urgent. In one case, the child of a physician, the tumor was made out in three hours after the initial pain. Before the swelling of the intussusceptum takes place there can be no discoverable tumor. When the swelling takes place there must, of course, be a tumor, but it may be so soft and so situated that it cannot be demonstrated. Considerable swelling of the distal end of the intussusceptum undoubtedly occurs within three hours in most cases. If we could always identify this mass, we should have, in it, a very early and important symptom.

The next most common symptom, 83 per cent in our cases, is the absence of fecal movements. The babe may have one or two movements immediately following the attack, but after that the bowel is empty below the intussusceptum.

A flaccid abdomen, generally scaphoid, was noted in 80 per cent of our cases. It is noted early and may continue for days. Distention comes too late to be of diagnostic importance.

Rejection of the stomach contents accompanied the onset in 100 per cent of these cases, but vomiting was not resumed until after the second day in 81 per cent. In one case there was no vomiting. Two did not vomit until the fourth day, and one not until the fifth. One vomited continuously from the beginning. We cannot, therefore, regard vomiting as an early or constant or reliable symptom.

Blood in the stools was absent for the first two days in 72 per cent. When present, this is, of course, a most convincing symptom, but, contrary to the general impression, is not an early one and its absence should not invalidate the diagnosis. Two cases had no blood in the stool at any time, in three the blood did not appear until three days, and in one not until the fifth.

When the intussusceptum can be positively identified by rectal touch, it is absolutely pathognomonic, but it could be reached by the finger in only 55 per cent of our cases. The absence of this sign should by no means exclude intestinal invagination as our statistics show that we may not expect to find it in almost one-half of cases proved, by operation, to be intussusception.

Loud gas explosions, as heard in the ileocecal region by the aid of the stethoscope, we believe is an early and significant symptom that has not received the attention that its importance would suggest. Unfortunately, no record was kept of the number of cases which were examined for this sign. These loud borborygmi are, of course, like those heard in other mechanical obstructions

of the bowel, but such obstructions are practically absent in those infants, with the possible exception of hernia, which any surgeon would naturally have in mind in making his diagnosis. These sounds are loud and not at all like the whistling, squeaky sounds heard in flatulency or in inflammatory conditions.

Osler, writing of intussusception, without regard to age, says that "Peritonitis usually develops in two or three days." In our twelve cases there was no evidence of peritonitis, notwithstanding the intense mesenteric strangulation in some, with two exceptions. In these cases the babes had been sick at least five days. It may be that peritonitis due to intussusception develops earlier in the adult than in the infant.

Reviewing those symptoms as to the period of appearance and importance, we find:

1. That a sudden violent abdominal pain, accompanied by a regurgitation of its stomach contents, in a child otherwise well, initiated the attack in 100 per cent of the cases.
2. That recurring pains, varying in intensity but regular in periodicity, accompanied by the assumption of peculiar positions, generally prone in those strong enough to move about, occurred in 100 per cent of those noted. That in those cases beginning in collapse, 25 per cent, these periodic pains were often indicated only by regularly repeated moans and drawing up of the limbs.
3. That an abdominal tumor could be made out somewhere in the course of the colon in 92 per cent.
4. That the stools did not contain feces in 91 per cent.
5. That mucous stools are recorded in 83 per cent.
6. That the above indications should strongly suggest intussusception within 48 hours after the attack.
7. That blood in the stools adds to this certainty of diagnosis, but it may be absent in 77 per cent until after the second day.
8. That instead of distention we may expect a flaccid, scaphoid abdomen.
9. That recurring vomiting is not usually one of the earliest symptoms, being absent in 81 per cent until the second day or later in our cases, and that in exceptional cases there is no vomiting.
10. That the positive identification of the intussusceptum by the finger in the rectum is ab-

solutely pathognomonic, but may be demonstrable in only 55 per cent.

11. That the virulence of the disease and its mortality depend not so much upon the time elapsed before operation as upon the intensity of the strangulation of the mesenteric circulation.

12. That, to protect all cases, the earliest possible diagnosis and operation is imperative.

This observation is supported by the following mortality account:

Of the 12 cases, 8 recovered, 4 died.

Of the non-collapsing cases, 8 recovered, 1 died.

Of those beginning in collapse, none recovered, 3 died.

## RAYNAUD'S DISEASE—SOME UNUSUAL TYPES\*

By GEO. DOUGLAS HEAD, B. S., M. D.

MINNEAPOLIS

No tissue of the body is more richly provided with nerves controlling the small vessels than the skin. This vasomotor mechanism, the center of which lies in the medulla, exercises a powerful control over these vessels. In health the pink color of the skin is maintained by the regular flow of blood through the small vessels and capillaries held in a state of moderate contraction (general tone). Exercise, by increasing the flow, intensifies this color, and the skin becomes red. Cold, by contraction of the small vessels, causes the skin to become blue or white, as is well illustrated by plunging one's hand into ice-water. At first the vessels of the skin are momentarily dilated, and the hand is flushed; later, partial contraction takes place, and a blue-mottling or marbling of the skin results, and, finally, if the hand is emerged long enough, the color becomes white, and the fingers and hand look shriveled and dead. The small arteries are now in complete contraction, almost no blood flows into the hand, and puncture of the skin with a needle is followed by little or no bleeding. If the vascular spasm is sufficiently prolonged, as by freezing, the blood supply is entirely cut off, and necrosis or local gangrene results. It is well known that stimuli originating in the central nervous system exercise a powerful vasomotor control over the vessels of the skin. One needs only to recall the suffused blush of embarrassment seen in the cheeks or the pale, ashen-white color of the skin observed in moments of fear or anger.

Individuals differ in the vascular stability of their cutaneous vessels. This is well illustrated by the simple test known as *dermatographia*. When you scratch your finger-nail across the skin of the back of a normal person, a fine red line soon forms in the track of the nail. If the individual possesses an unstable vasomotor mech-

anism you will note a broad, intensified, red band three or four mm. in width, or a fine white line followed in a minute or more by the formation of a broad red line, or, less commonly, a wheel-like central white line bordered on either side by a bright-red band of erythema (factitious urticaria).

The flushings of the skin in exophthalmic goiter, the red painful limbs described by Mitchell and called by him *erythromelalgia*, the hot flashes of the menopause, the erythemata of hysteria and neurasthenia, the hectic flush of patients with phthisis, the pulsating vessels with localized erythema of migraine, the local suddenly developing swellings of angioneurotic edema, are examples of vasomotor instability of the dilator or constrictor type, closely allied to, but not to be confused with, the subject of this paper.

To the forms of vascular spasm, or ataxia, associated with local asphyxia, syncope, hyperemia, or gangrene, to explain the origin of which, no distinctive pathological changes can be found in the vessel walls, the term *Raynaud's disease* or *Raynaud's syndrome* has been given.

We are as ignorant today of the pathology of this disease as was Raynaud himself. Pathological lesions, such as neuritis, endophlebitis, endarteritis, degenerating nerve-fiber changes in the spinal cord and elsewhere, have been described. Many of the cases coming to autopsy, however, have shown no pathological changes. Raynaud conceived its origin to be a disturbance of the enervation of the capillary vessels. We have learned some facts which he did not know relative to the vasoconstrictor effects of adrenalin and the vasodilator effects of the thyroid-gland secretions, but no one has succeeded in establishing a definite relationship between localized vascular changes in the skin and the secretions of the ductless glands.

The purpose of this paper is to call your at-

\*Read before the Minnesota Academy of Medicine, Dec. 8, 1915.

tention to the various types of this disease, and to discuss some of its obscure forms, frequently, I believe, overlooked.

In the mildest form, the patient, usually a young woman, complains of numbness and tingling in the fingers of one or both hands. The toes may be involved, but less frequently. In some of the attacks the fingers may become white as if frozen (dead fingers). The following case illustrates this type of the disease:

In December, 1901, I saw Mrs. McM., a young married woman thirty years of age. She had no children. Her mother had died of cancer. There was no history or evidence of lues. Up until four years ago her health had been good. At this time she began having attacks of numbness in the first finger of the right hand. These attacks came on at irregular intervals, usually several months apart and usually at a time when she was under some nervous strain. In the attacks the first finger as far as the first phalangeal joint, became numb, and at the same time or later changed to a fire-red. She had never noticed it to become white or blue. It remained in this condition for one or two days, and then the skin of the finger peeled off. No other fingers were involved. She had had sharp pains in her toes occasionally, but had never noticed any change in their appearance. Exposure to cold did not bring on the attacks, neither did the placing of the hands in cold or hot water.

The patient was a well-nourished young woman with dark hair and eyes. A careful physical examination for organic disease was negative. The vessel walls were not thickened. The heart was negative. There was no anemia. The urine was low in specific gravity (1009) and contained no albumin, sugar, or casts.

On account of the absence of organic disease, the nature and recurrence of the attacks, a diagnosis of Raynaud's disease was made. The patient was kept under observation for some time, but was not observed during an attack.

The type of this disease associated with attacks of pain in the abdomen, with or without nausea and vomiting and with or without diarrhea, is of extreme interest, and may be difficult of interpretation unless the examiner secures a history of vascular disturbances in the fingers or toes. The following is a case illustrating this:

In September, 1902, I saw Mrs. S., aged 40, married, no children. Family and personal history, negative up until twelve years ago, when she began to have peculiar attacks beginning with severe pain in the abdomen, accompanied by vomiting and diarrhea and associated with a blue cyanotic appearance of her hands and feet. She had had a number of these attacks, always starting with the vomiting, diarrhea, and pain in the abdomen, and ending with the blue hands and feet. Exposure to cold often brought on these attacks. Her fingers and toes never got dead or white. She had observed no swelling. She had noticed, however, that the skin of the hands and feet bled easily when cut.

Examination revealed a well-nourished woman of rather pasty color. Careful physical examination was

negative for organic disease except for the peculiar dark-blue cyanotic appearance of her hands, feet, and legs. The blue color in the hands was very marked up to a point just above the wrists and also about the elbows. Her feet and legs were blue up to and including her knees. These parts were cold to the touch, but the patient complained of no abnormal sensations. The skin over these areas had a scaly appearance. She stated that this was always so following the attacks. There was no actual loss of tissue. The face and all other parts of the skin had a normal color. The heart was negative.

Urine examination revealed a specific gravity of 1020, a large amount of albumin and a few hyaline and granular casts.

It is generally agreed that nephritis rarely complicates Raynaud's disease. Nevertheless, I feel quite sure that the above case should be so classified. A localized cyanosis, such as this case exhibited, I have never seen in an experience with many hundred cases of nephritis of all types. The sharply localized areas of cyanosis of the hands and feet, associated with the scaling of the skin, coming on in distinct attacks, justifies, I think, the diagnosis of Raynaud's disease associated with nephritis.

In persons of large, robust build and engorged vessels, the face and often the extremities show a dark-red or cyanotic color, especially in cold weather, sometimes spoken of as the *beefsteak* hand and the *beefsteak* cheeks, but this patient presented no such appearance, and the cyanosis came on always during the attacks of pain in the abdomen with vomiting.

A second case illustrating a type of the disease associated with abdominal pain is the following:

Clarence W., aged 15, school-boy, parents living but both in poor health. Father has kidney trouble. The boy has had the usual childhood diseases, and has suffered from constipation for years. He has lived in the South, but has never had chills or fever. About one year ago, after an attack of what was called la grippe with relapse, he began complaining of pain in the left upper abdomen and also at times in the right upper abdomen, especially if he exercised much. Associated with these spells, he complained of weakness, headaches with specks and wheels before his eyes, and persistent constipation. The attacks were more likely to come on when he exposed himself to cold. About this time he also noticed that his right big toe became chilled easily, and was numb most of the time. This was worse if he got his feet cold. After these attacks the toe usually scaled off. No other toes were affected. He never vomited during these attacks nor had swelling of the limbs.

The patient was a tall boy with a long chest and abdomen, slender limbs, active reflexes, and pronounced dermatographia. Careful physical examination was negative for organic disease, except a slightly enlarged spleen, which was palpable about one fingerbreadth



below the costal margin. The pulse was fast (100 to the minute), but the heart was negative. The right big toe showed some dullness of sensation, but there was no scaling or discoloration at the time of examination.

The urine was negative; the hemoglobin, 85 per cent. the leucocyte count, 10,500.

The patient was observed over a considerable period of time. No organic disease in the abdomen could be discovered.

The association of attacks of pain in the abdomen, and vomiting, with the sensations of cold and scaling of the big toe, justified the diagnosis of Raynaud's disease, the attacks of abdominal pain being explained on the grounds of a vasomotor spasm of the splanchnic vessels. The enlarged spleen could also be accounted for upon the grounds of an acute dilatation of its vessels.

Very curious sensations in the chest, as well as in the abdomen, are complained of by some of these patients, and are very difficult of interpretation if one fails to pay attention to the complaint, which the patient usually makes, relative to the attacks of white and numb fingers.

In the following case the patient came complaining of a feeling of pressure over the lower chest and upper abdomen, which she described as "growing greater and smaller like a bubble expanding and contracting":

Miss L., aged 32, single, a stenographer. Negative family history except that her father died of paralysis. She has always been very well, except for the past nine years, when she has suffered from frequent attacks of coldness of the fingers of both hands, in which the fingers became white and numb and later red. She says that she had been working very hard and had become nervous. She now suffers from attacks of peculiar pain developing in the chest and upper abdomen. She has no cough, no sweats, no fever, and no difficult breathing with this pain. It is not exaggerated by deep-breathing. She describes this pain as originating in the lower portion of the chest, and feels like "a bubble which gets larger and smaller." She feels sick at the stomach, but does not vomit in these attacks. She often has crying spells, and her hands and feet are constantly cold. Of late she has had more of her attacks of dead fingers. These come on at irregular intervals, sometimes every day and other times once in three or four days. She has no pain with these attacks. The fingers become marble-white and feel numb. By placing her hands in hot water the whiteness passes off, and the fingers become red.

The patient was a tall, fairly well nourished looking young woman, with fairly good color. She looked tired and overworked. Careful physical examination was negative for organic disease.

The urine contained a trace of albumin, but no casts. The blood-pressure systolic was 118; diastolic, 72. Hemoglobin, 82 per cent. Leucocytes, 7,000. Von Pirquet test, negative. X-ray examination of teeth, negative.

On April 20, 1915, the patient was seen in my consulting-room in one of her attacks of numbness and

blanching of the fingers. The fingers of both hands, but not the thumbs, down to the palms were cold and dead-white. I pricked with a needle two or three of the fingers, but no blood flowed out. As soon as the patient placed her hands in hot water, she felt a tingling in the tips of the fingers, the color changed from a dead-white to deep-blue and later to red, and the patient then said the attack was over. The attack lasted about five minutes.

On April 30 I saw the patient in a second attack. The fingers to the second phalangeal joint were also involved. The fingers were marble-white. The attack passed off in about five minutes, the fingers getting blue and then red. The patient stated that the attacks rarely last more than five minutes, and many of them pass off in one or two minutes, and that she has no warning of the onset of the attacks. There was no disturbance of the heart-action during the attack, and, though the radial pulse was small, it could always be gotten at the wrist.

The diagnosis in this case was Raynaud's disease. The peculiar attacks of pain and distress in the lower chest and upper abdomen were undoubtedly caused by an angiospasm of the splanchnic vessels. The patient is still under my care. The attacks of pain in the chest were relieved by nitroglycerine. On forced feeding she has gained in weight. Following the suggestion of Osburne, I have recently placed her upon thyroid-gland extract.

Some remarkable examples of the spasmodic contractions of the vessels of the brain, causing monoplegias, hemiplegias, aphasias, paraplegias, epileptic seizures, fainting spells, etc., have been described in connection with this disease. The recognition of such cases is often difficult because the angiospasm of the central vessels may occur for long periods of time prior to the development of symptoms which clearly indicate the nature of the trouble. The following case illustrates well the difficulties which arise in the interpretation of such cases, especially where the angiospasm is of such a high degree as to produce, not only a series of puzzling abdominal symptoms, but also fainting attacks, polyuria, girdle pains, etc. It is not at all unlikely that the polyuria associated with attacks of so-called hysteria is in reality an expression of a vasomotor ataxia of the renal vessels.

Mrs. D., aged 28, married, one child. Family history, negative except that her mother died of Bright's disease. She has been in poor health for the last ten years or more, during which time she has been a semi-invalid. All these years she has been suffering from a feeling as if a rope were tied about her abdomen. This was especially marked in the morning before she took food into her stomach. Seven years ago she had a nervous breakdown with marked weakness, vomiting spells, and a series of fainting attacks in which she lost consciousness. She was in bed for a time, and was examined by various physicians. No organic disease was found. The patient later suffered from spells of jerking and twitching of her forearms and legs. These

attacks were usually followed by the passing of large amounts of light-colored urine. Three days prior to the examination the patient describes a fainting attack while at the telephone talking to a friend. She became dizzy, and a feeling as if the blood was running out of her arms and legs came over her, and she felt faint, as if she was going to die. She had to lie down for a time. After this attack ceased, she passed a large quantity of clear urine.

The patient was a woman of short stature, and dark hair and eyes. The pupils reacted to light, the knee-jerks were very active, and there was active dermatographia with factitious urticaria. Careful physical examination was negative for organic disease. The Wassermann reaction was negative. Repeated examinations of the urine, gastric contents, and blood were negative. The patient was treated and studied over a period of nine months without any marked relief and without a diagnosis being made.

When she again presented herself she complained of peculiar attacks in which she had a feeling of faintness in the pit of the stomach. These were followed by numb sensations in her hands; and on looking at both hands she noticed that the fingers were white, and felt dead and numb. After a few minutes this white color gradually passed off, and the fingers became red. She had had a number of these attacks of late. They oftentimes came on when she was playing the piano or sewing.

A diagnosis of Raynaud's disease was then made. The patient has been under observation since, and has had a number of attacks, but has never developed any necrosis of the fingers. She has complained at times of rheumatic pains about the joints, and at one time she had an attack of pyelitis involving the right kidney.

While the diagnosis of hysteria, whatever that may mean, might be entertained in this case, a much more reasonable interpretation of the fainting attacks, the full sensations in the abdomen, and the vascular disturbances in the fingers, is, that they were expressions of an angiospasm, either of the central or peripheral arteries. Undoubtedly, also, the polyuria, which this patient and many other patients giving a similar history exhibit, should also be interpreted as a vasomotor phenomenon.

Very curious indeed are some of the symptoms of which these patients complain. The following case must have baffled all the physicians whom the patient consulted until finally the development of an angiospasm in the vessels supplying the great toe in the right foot clearly indicated the nature of the disease.

Mr. K., aged 41, married, no children. Man of large business affairs. His family and personal history was negative except that he admitted Neisserian infection followed by orchitis many years ago. He dates his present illness back about four years, when he began having creepy feelings in the back of his neck. This bothered him so much that he could hardly attend to his business. It was especially marked during the day, but would occasionally bother him even at night, and

keep him from sleep. In warm weather he was free from the sensation in his neck. It usually came on when he was tired or worried. He consulted various physicians, both at home and in the East, who were not able to assign a cause for the symptoms of which he complained, but told him that he presented no evidence of organic disease and was probably overworked.

After a couple of years this feeling in the neck went away, but at about the same time he began to notice numb feelings in the right leg and, to a less extent, in the left leg. He would notice this feeling in the legs more in the day, but it would disappear as soon as he lay down at night. This always bothered him most when he was tired or worried, but would disappear when he took recreation, such as playing golf. He had never had these sensations in the summer. He noticed the feeling of numbness more in the cold weather. He thinks the creepy sensation in his neck is of the same nature as those in the limbs.

In the winter of 1911 while trap-shooting, although his legs and feet were well protected, he felt cold in his legs, and a heavy pain came on in his right big toe. He went inside, and on taking off his shoe and stocking, he found that the toe was as white as marble and numb. After some rubbing and manipulation the circulation returned, and the toe became very red.

Two months ago he noticed a black-and-blue spot upon the upper part of the right thigh. This is now gone, but it persisted for a number of days, and he could not account for its appearance.

The patient is a large, fairly well built man. Fairly good color. Pupils react to light; knee-jerks active. Active dermatographia. Careful physical examination was negative for organic disease outside of a soft blowing systolic murmur at the apex of the heart on exercise, which disappeared on lying flat. The cardiac area of dullness was not enlarged. Blood-pressure, 95 to 100. No thickening of the vessel walls.

Urine, negative, except for an occasional hyaline cast. Hemoglobin, 100 per cent. A diagnosis of Raynaud's disease was made. The patient was placed upon nitroglycerine, was cautioned against exposure to cold, and has since had no attacks.

Remarkable indeed are the manifestations of this disease associated with necrosis and gangrene involving either the extremities or various parts of the skin. It was this type of the disease which Raynaud described and to which his original description applies. This form of the disease should not be confused with the local gangrene associated with arteriosclerosis and caused by arteritis obliterans.

Such a patient I had under observation about one year ago. He was a business man, 65 years of age, whom I had been watching for a number of years. He had chronic interstitial nephritis, a high blood-pressure, cardiac hypertrophy, and thickened vessels. An amputation of a part of his foot was finally necessary because of a developing gangrene of the right big toe. Prior to the development of gangrene the patient suffered for weeks with paroxysms of severe pain in the



big toe, at which time the toe would become fire-red, and would beat and throb making the patient very miserable.

Neither should one confuse with Raynaud's disease the gangrene complicating diabetes mellitus, which usually appears in one of the lower extremities.

Some years ago a patient whom I had been treating for years, with diabetes mellitus, was suddenly seized with a severe pain in the left big toe. I saw him on the third day after the onset of the attack. The toe was already black, showing signs of beginning gangrene. Strangely enough, at this time there was no sugar in his urine. His thickened vessels and his age (68 years) established the diagnosis of obliterative endarteritis with gangrene.

One should also be careful not to confuse the local gangrene seen in cervical rib with Raynaud's disease. Here the diagnosis is often more difficult because the condition is rare, and occurs usually in young persons.

Year before last at the University Hospital, I was able to make a diagnosis of cervical rib, which was later confirmed by x-ray examinations and operation, in an obscure case of gangrene in the third and fourth fingers of the right hand, which had been diagnosed as Raynaud's disease. In this case the absence of a pulse at the wrist on the affected side aroused my suspicion, and led to further investigation, establishing the diagnosis.

Some of the so-called cases of neuritis of the shoulder and arm, associated with attacks of vascular disturbance in the arm with or without necrosis, described in the literature are probably of this nature. One should also remember that chronic poisoning with ergot may be accompanied by a local gangrene of one or more of the fingers or toes.

In 1898 I saw a University student in a severe attack of bronchial asthma, for which I prescribed a rather large dose of ergot. The patient took the medicine over a period of about a month when he again presented himself, stating that he was having considerable pain in the second toe of the right foot. On examination the toe showed no swelling and very little redness, but the skin of the toe down to the first phalangeal joint was dark and gangrenous looking. The patient had been taking the ergot since it had been prescribed. He recovered without the loss of the toe. It is stated that these cases are rare. Of course one could not be sure that the ergot

was the causal factor in the production of the gangrene. The close relationship as to time is, however, striking.

These examples of Raynaud's disease associated with recurring attacks of localized gangrene are not uncommon. The necrosis may be confined to a finger-tip or an extremity. Only small patches of skin may be involved. Dr. Osler has reported a remarkable example of this form. The patient was a woman, aged 48, who came complaining of difficulty in speaking, and peculiar sensations in the fingers. In April, 1892, she had had dizziness and probably loss of consciousness. A month later there was a second attack with local asphyxia in the little and ring fingers of the right hand. About one year later there was another attack of asphyxia and superficial necrosis of the terminal phalanges, of the index, and little fingers of the right hand. One month later there was an attack of aphasia; two months later, a second attack of aphasia with spasm in the right hand; then a period of good health until February, 1895, when an attack of local asphyxia with necrosis of the terminal phalanx of the middle finger of the right hand, appeared, followed two months later by a slight paralysis of the left arm and leg. In July of that same year, there was a second attack of aphasia with right-sided hemiplegia, local syncope, and asphyxia of the right hand and fingers. In January, 1896, a final attack of intense pain in the right hand with rapid gangrene extending to the elbow, developed, followed by coma and death.

I have seen one remarkable example of this variety. In January, 1911, I saw in consultation Miss E., aged 20, a single woman. She gave a good history, and her past history was excellent up to three years ago, since which time she had not menstruated. About three years ago she began to complain of attacks of swelling, and some pain in the left upper abdomen in the splenic region. These attacks were associated with a swelling of her lower legs. Each of these spells would last two or three weeks. She did not vomit in the attacks. She never felt any tumor in the upper abdomen in the region of the swelling. That same winter an area of skin about the size of the palm of her hand turned black on her right leg above the knee. This was slow in healing, and left a white scar. Four weeks later another similar gangrenous area appeared in the skin on the exterior surface of the right ankle. Six months later the index-finger on the left hand became dead, and turned black



up to the second phalanx. Two years ago, also in the winter, another gangrenous area appeared in the skin of the left arm. There was considerable loss of skin and underlying tissue at this time. The skin became black, and an ulcer formed and finally healed with a large white scar. She had no pain in any of these attacks. She gave no history of numb or white fingers. She denied any attacks of abdominal pain.

In January, 1911, she was seized with another attack in the first finger on the left hand. At this time I saw her. The patient was a well-nourished woman, with dark hair and eyes. The pupils reacted to light, and the knee-jerks were active. The mucous membranes had good color. Careful physical examination was negative for organic disease outside of the appearance of the left index-finger. This digit was swollen, black, and gangrenous down to the second phalanx. None of the other fingers were involved. Scars of the old areas where gangrene had occurred were plainly seen and indicated a considerable loss of tissue. The blood and urine examinations were negative. There was no enlargement of the spleen.

The patient's age and the history which she gave of recurring attacks of gangrene in various parts of the body coming on in cold weather established the diagnosis of Raynaud's disease.

## BOOK NOTICES

THE INTERVERTEBRAL FORAMINA IN MAN. By Harold Swanberg. Pages, 95; and 11 plates. Chicago Scientific Publishing Co., Chicago, Ill. Price, cloth, \$1.75.

Having investigated the intervertebral foramina of lower animals, Swanberg, in this monograph, takes up the foramina of the human in a very concise manner. He gives his investigations as to shape, boundaries and relative size, then devotes a chapter to the modified forms. This careful arrangement is further condensed by placing the more important ideas in large type, allowing a very rapid review of the subject. The importance of placing this scientific investigation in condensed form will readily be appreciated. Careful readers will be able to check up the abnormal spine conditions and to deal more definitely with the cases calling for spinal manipulation.

The book is well written, profusely illustrated, and deserves a place in the student's library.—DONALDSON.

A TREATISE ON THE PRINCIPLES AND PRACTICE OF MEDICINE. By Arthur R. Edwards, M. D., Professor of the Principles and Practice of Medicine and Clinical Medicine and Dean of the Northwestern University Medical School, Chicago. New (third) edition, thoroughly revised. Octavo, 1,022 pages with 80 engravings and 23 full-page plates in color and monochrome.

Cloth, \$6.00 net. Lee and Febiger, Philadelphia and New York, 1916.

This treatise on the principles and practice of medicine meets the demands of the busy practitioner for a concise and complete reference book. It also furnishes a good text for the undergraduates who have neither the desire nor the time to wade through an exhaustive work. Its virtue may best be expressed by the words of the author in the preface: "The whole work has been rewritten to secure increased brevity and clearness. The result is indicated by the fact that a vastly greater amount of information is furnished in a space decreased by some two hundred pages."

The author has been careful to eliminate antiquated theories and methods, and has incorporated all the latest advances in medicine which have proven of value or have been shown worthy of consideration.

The clear and orderly arrangement and sequence of the subject matter of each topic is especially to be commended.

Therapeutics is made an important feature of each subject. This part of a text-book of medicine is usually neglected. The author gives briefly, but in clear detail, the best and most orderly and approved methods of treatment.

One feature of the therapeutic sections that might be considered out of harmony with the rest of the text and which might be interpreted to mean that the book was not thoroughly up to date, is the old-style method of writing prescriptions, the metric system being entirely ignored.

The book contains a number of colored plates, some of which are good, but others are of questionable value.

However, with the exception of a few minor criticisms, such as have been indicated, the book will undoubtedly prove most useful to students and practitioners of medicine.

—DRAKE.

A TEXT-BOOK UPON THE PATHOGENIC BACTERIA AND PROTOZOA. FOR STUDENTS OF MEDICINE AND PHYSICIANS. By Joseph McFarland, M. D. Eighth edition, thoroughly revised. Octavo of 807 pages with 323 illustrations, a number of them in colors. Philadelphia and London. W. B. Saunders Company, 1915. Cloth, \$4.00 net.

A text-book appearing in its eighth edition needs neither introduction nor recommendation.

It would be difficult to pay an author a higher tribute than to announce that his work had been published in its eighth edition. In the last edition the author has followed the general plan of earlier editions. The work is divided into two parts; part one covers the principles of general bacteriology and immunity, and bacteriologic technic. To this part a chapter on bacterial vaccines has been added.

Part two discusses the pathogenic bacteria and the specific infections they produce.

Part two has been enriched by three new chapters; one on acute anterior poliomyelitis, one on typhus fever, and a third on sporotrichosis.

The chapters treating the subjects of acute poliomyelitis and typhus fever are of especial interest as recent work in these important fields is given due consideration and brought well up to date.

Aside from an unimportant error in numbering the chapters in the table of contents the work reflects much credit to author and publisher.

—LARSON.



W. A. JONES, M.D., Editor

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JUNE 1, 1916

## PAY PATIENTS IN PUBLIC HOSPITALS

The University of Minnesota, from its hospital end, is presenting a new problem for immediate consideration. First, as in all other good medical schools, it has been found necessary to limit the number of applicants in the lower classes to eighty a year in Minnesota, while in some of the eastern schools the number has been placed at one hundred a year. This limitation in all medical schools is undoubtedly a great benefit, because it brings the student into closer contact with the instructors, and gives him the benefit of more intimate clinical association with the sick. The University, unfortunately, has but one hospital, the Elliot Memorial Hospital, which was really a free gift by the Elliot Estate, and has since been maintained by the State.

When the present hospital was under contemplation, it was agreed by the University Medical Faculty and the University authorities, that the hospital was a place for deserving free medical patients from any part of the state. They were admitted through application-blanks signed by physicians and clergymen and a county commissioner. The object of this was to prevent undeserving patients from crowding the hospital; and a further proviso was made that no patient should remain in the hospital more than six

weeks. This was done in order to give a rotation of patients, and not permit the accumulation of a lot of old chronic cases. The present hospital has but two hundred beds, and the clinical needs of the Medical School have been placed at the total number of five hundred and fifty-five.

In connection with the University Medical School, the City Hospitals of St. Paul and Minneapolis, both of which are virtually free institutions, provide free care for the sick of both cities.

These hospitals have operated a clinical service for the Medical School. One staff is appointed by the University for each of the City Hospitals, and one staff is appointed by the superintendent of the hospital, composed of attending physicians and surgeons and specialists outside of the medical college, thus making two staffs in each institution. This gives the student body a large and, for the present, ample clinical opportunity, but the Administrative Board of the Medical School feels that the present hospital on the campus should be enlarged, but they also feel that any new hospital building should be made a pay institution, and the authorities have informed the Faculty that, unless this arrangement can be made, or unless individuals will donate from their private funds to build additional buildings, the Legislature will refuse to furnish appropriations for new hospital buildings, and, in order to emphasize this, the University authorities have suggested that to meet the problem patients taken into new buildings must be pay patients. This idea probably will meet with strenuous opposition, not only from the public hospitals in the Twin Cities, but from all the general hospitals, private hospitals, and special hospitals in both cities and throughout the state. The idea that the State or some private individual may build a building, and that it must be maintained by pay patients will not be received with favor. The University authorities may argue that only a limited number can be accommodated, but this does not clear the principle of the plan of its fault.

In order to bring this matter up, the Minneapolis Civic and Commerce Association has taken an active part in an endeavor to get at the opinion of physicians, and to that end a letter has been addressed to two hundred physicians in the state, in which a series of questions have been asked, and replies are looked for.

THE JOURNAL-LANCET feels that it may reply, perhaps, not for the physicians of the state, but for many physicians who are interested in the

working out of this situation. The questions and our answers are as follows:

1. Do you favor the enlargement of the clinical facilities in connection with the Medical School of the State University? To this there can be but one answer, that is "Yes."

2. Do you favor the completion of the proposed hospital system? To this there can be but one answer, and that is "Yes."

3. Do you favor the making of an effort by friends of the school to secure gifts for the new buildings from private individuals? The natural answer to this question is "Yes."

4. Do you favor the taking of per-diem patients in new buildings to meet maintenance expense?

The answer to this question is an emphatic "No," and is based upon the assumption that the State, in establishing and maintaining a University and its various departments, is bound by a State moral obligation properly to support it in all of its departments, and to maintain the expense of its departments by sufficient appropriations. The insane, the feeble-minded, the indigent, and the inmates of penal institutions are all under State management, control, and maintenance. Why should not a hospital for the Medical School be in the same category? An attempt some years ago in the state institution for the insane to provide pay quarters for patients was tried out thoroughly, and was soon found to be a pernicious custom, a bad precedent, and was dropped as promptly as possible. There is no state public institution in Minnesota that receives pay patients, and there should be none.

5. Do you favor the employment of full-time teachers, whose meager salaries may be supplemented by fees from a strictly limited number of patients who may be referred to them for investigation, diagnosis, or treatment on the University campus?

The answer to this question is an equally emphatic "No," based upon the assumption that the State should provide full-time teachers on a sufficient and normal salary basis without supplemental fees from outsiders.

This probably means, too, that, because the State has not seen fit to make sufficient appropriations to its teaching force, many physicians in the Medical School will either have to give up their idea of occupying a permanent teaching chair on an insufficient salary basis, or will have to be permitted to earn more money in the time not demanded by the Medical School. This question further assumes that there is no other hos-

pital in the State of Minnesota where patients may be investigated, diagnosed, or treated except on the University campus, and this assumption will not carry much weight with those who know and are familiar with medical work outside of the campus. This question further suggests that the Administrative Board recognizes the impossibility of securing able men on the meager salaries offered, and they propose this as a suggestive feeder to increase the salary of the instructor. This in itself would be a tremendous incentive to class legislation, as it were, or class maintenance, and, although the time may come in future years when the University feels that it can reach out and embrace all departments of the State, it is in no position as yet to take care of public-health work. It would be much better if the University and its Administrative Boards would present the subject of necessarily increased salaries for its instructors first, before it began any enlargement of its campus buildings.

6. Do you believe that the necessary per-diem patient would be referred to the University by the physicians of the state?

The answer to this is "No," because it suggests but one center, one class, and one body who feel able to do the work that is done daily by others.

If the Civic and Commerce Association of Minneapolis and the University Administrative Board are preparing to present this sort of an argument to the Legislature, the probabilities are that the whole scheme will ignominiously fall.

#### HEALTH INSURANCE

There is a growing probability that in the near future,—that is, within three to five years,—the question of health insurance in this country will receive as much attention as in the countries of England, Germany, Norway, and perhaps other countries. The question has been taken up by the Council on Health and Public Instruction of the American Medical Association, and will be worked out in the best possible manner. There is really no need of any immediate legislation in individual states, and yet bills have already been introduced in Massachusetts, New Jersey, and New York, but this may simply end in the establishment of the United States Commission for the investigation of the entire subject of social insurance. There is now a state commission in California, and the movement is evidently being pushed along in Ohio. It is the desire of the chairman of this special committee that states



need not take any determined stand or any decisive action in the matter until there is a standardization of all laws throughout the United States. It means that it will require an adjustment of new relations between physicians and laymen; and that, of course, is a big educational problem. It means, too, that steps will be taken for the prevention of disease and the improvement of the health of the community.

This is not entirely a medical problem, but it is very largely a sociologic problem, and must be considered with both points in mind, in order to arrive at a satisfactory decision.

Unless public-health men recognize the social service end of public health, there is going to be a good deal of difficulty; but, if we are willing to appreciate the laymen's point of view and not force the medical men's point of view too strongly, it is quite likely that all can get together on a common basis and for the common good.

The question of health insurance has been in existence in Germany for a long time, and in England only for a few years; and in both countries defects have been found which make it very necessary that the United States proceed very slowly in their discussion of this important topic. For instance, in England, when the matter of insurance came up, the physicians were very slow in recognizing the importance of the movement. The result was, that they were not consulted, and in the end they were greatly disappointed by the insurance laws. If the physicians had been alive to the situation they would have greatly bettered their own condition.

As the question stands now, the medical man has but few concessions from the commission. They did succeed after a while, and, following a bitter fight, made some alterations in the present law in England; but the changes were of no great benefit to medical men. This question means, too, that probably the municipality of the state will eventually take hold of the care of the sick. This means that there will be a greatly reduced number of physicians, presumably on account of the stamping out of many diseases, but partly due to the fact that the physician's income will be curtailed to such an extent that he will have to seek other fields of occupation. This matter cannot be pushed aside with flippant comment; it must be seriously and gravely considered, studied in all its details, and worked up to the point where it will be satisfactory to all concerned.

## THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS

The recent meeting of the Congress of Physicians and Surgeons, held at Washington May eighth to eleventh, was the most successful that Washington has seen. About one thousand physicians were in attendance in all of the sections. The Congress, as our readers perhaps know, is made up of societies of special workers. For instance, there are a Gastro-Enterological Association, a Surgical Association, Association of Physicians, Association of Surgeons, Eye and Ear, Throat and Nose, and associations of those interested in Climatology, and numerous other associations of similar specialties. It is not an easy matter to become a member of this organization, as many of us have found. The members of each association are selected very carefully before their names are presented to the nominating committee. The names lie over for a year while the council of each association conducts its investigations as to the man's qualifications and desirability.

This Congress meets but once in three years, in Washington. The following two years, the various American associations meet, either at the time of the American Medical Association or at such times in the year as they may decide upon. Not infrequently these associations meet in May, independently of the meeting of the American Medical Association.

One can usually depend upon an interesting program, interesting because it is prepared with great care; and the papers presented are by men who are qualified to speak. All of the newer things in special medicine are brought out at this Congress. Research-work investigation of all kinds which has been going on for from one to three years is compiled and tabulated. The report is usually read by men who are experienced in their special departments. The discussions are usually of a higher order than at other association meetings, primarily because there is a good deal of work on the program, and usually the chairman of each association is a man of directness and force, and presides as a man would at a business meeting. The result is very snappy, concise discussions, directed at the point of the paper and usually interesting.

The deliberations and results of the Congress are published in a volume, and each member of the Congress, or the individual of an American association, receives a copy of the proceedings. His fee, too, entitles him to all of the benefits of

the various meetings of other societies,—that is, he can go from one section to another without hindrance or embarrassment.

A number of men from Minnesota were in attendance. Rochester was represented by Dr. W. J. Mayo, Dr. Giffin, Dr. Plummer, Dr. Braash, and others; St. Paul, by Dr. A. MacLaren, Dr. C. Eugene Riggs, Dr. W. R. Ramsey, and Dr. A. R. Colvin; Minneapolis, by Dr. J. G. Cross, Dr. J. P. Sedgwick, Dr. F. C. Todd, Dr. W. A. Jones, Dr. S. M. White, Dr. J. E. Moore, Dr. A. A. Law, Dr. R. E. Farr, Dr. F. L. Adair, and Dr. H. M. Bracken; the Medical School of the University, by Dean Lyon, Dr. G. L. Rowntree, Dr. H. E. Robertson, Dr. E. T. Bell, and Dr. A. J. Chesley. Chicago sent quite a large delegation of its well-known men, both in the field of medicine and all of the other specialties.

Washington was at its best for weather, with sunshine and comfort. The country was gorgeous. All the fruit trees were in full blossom, and the foliage was much farther advanced than in any portion of the Middle West.

#### A PERNICIOUS BILL

Senator Works of California has introduced a bill in Congress to make it unlawful for any officer or employee of the U. S. Public Health Service to become a member of any medical or health association. The bill could not be more pernicious or foolish if it limited such officers and employees to men who have never read any medical or public-health literature.

We are informed that there is danger of the passage of the bill. We refuse to believe it; yet the arguments that will be advanced for its passage may be so specious as to possess some degree of danger, especially in the absence of organized effort to enlighten members of Congress. Any effort to do so will command our hearty co-operation.

#### MISCELLANY

##### MEMORIAL TO DR. WILLIAM B. MURPHY

WHEREAS, It has pleased Almighty God to remove from among us, Dr. William B. Murphy, whom we have learned to love through intimate professional association, a member of this Society for many years, and a man whose pro-

fessional attainments and personal qualifications endeared him to each and all of us;

*Be It Resolved*, that we the Necrology Committee of Hennepin County Medical Society extend to the bereaved family our sympathy in their affliction.

*Be It Further Resolved*, that a copy of these resolutions be spread on the records of the Society, and that a copy be sent to his family.

(Signed) W. H. AURAND, Chairman.

LEO M. CRAFTS,

J. E. HYNES.

#### CORRESPONDENCE

##### TO MEMBERS OF THE STATE MEDICAL ASSOCIATION OF MINNESOTA

To the Editor:

The attention of the members of the State Medical Association is again called to the candidacy of Dr. J. A. Gates of Kenyon, for the office of lieutenant-governor. Those of us who know Dr. Gates personally can vouch for his reliability and his interest in all things medical. His experience in the Legislature will make him a valuable presiding officer for the Senate.

Unfortunately, many attempts are made to pass legislation disadvantageous to the best interest of the people and the medical profession, and it will be of great advantage to have some one who is vitally interested in preventing bad legislation in a position of influence. Frequently, legislation of importance to the medical men, the boards of health, and the people is desired. A man in the chair of a legislative body can exercise much influence in assisting good legislation, as well as in preventing the passage of bad laws. For the first time in the history of this state, the profession now have a chance to place one of their number in a foremost position politically; and it is to be hoped they will live up to their privilege, and support Dr. Gates by their own individual votes, as well as by using all honorable means with all the voters they know in his favor.

If he receives the nomination at the primaries on June 19, it is almost equivalent to his election in November. So remember June 19th as the primary election day and in the meantime work for Dr. Gates' nomination.

THE COUNCIL OF THE MINNESOTA

STATE MEDICAL ASSOCIATION.

St. Paul, May 24, 1916.

## REPORTS OF SOCIETIES

### CAMP RELEASE DISTRICT SOCIETY

Camp Release District Society held their quarterly meeting at Montevideo on April 27, with a large attendance.

Dr. H. M. Bracken, of St. Paul, spoke on "Public Health Problems in Minnesota," and Dr. Kerns, of Granite Falls, read a paper on "Continued Fevers in Granite Falls." The next meeting will be held at Redwood on July 27.

H. KERNS, M. D., Secretary.

## NEWS ITEMS

Dr. G. M. Sewall has moved from Cuyuna to Deerwood.

Dr. George D. Whare has moved from Eveleth to Proctor.

Dr. E. L. Hills has moved from Roslyn, S. D., to Leith, N. D.

Dr. E. Hyslin, of Tacoma, Wash., has moved to Elmore, N. D.

Dr. George I. Badeaux has moved from St. Paul to Brainerd.

Dr. A. J. Paulson has moved from Flaxton, N. D., to Grand Forks, N. D.

Dr. J. A. D. Engesather has moved from Park River, N. D., to Brocket, N. D.

The Seventh Day Adventists have purchased the Harvey Hospital, Harvey, N. D.

The Deaconess Hospital of Grand Forks, N. D., gave diplomas to ten nurses last month.

The Eitel Hospital, of Minneapolis, graduated ten nurses from its training-school on May 6.

Dr. N. O. Sandven has moved from Arnegard, N. D., to Park River, N. D., where he formerly practiced.

St. Andrews Hospital of Minneapolis graduated four nurses from its nurses' training-school last month.

Dr. E. S. O'Hara, a graduate of the University of Minnesota, class of '14, has located at Alberta, Minn.

Dr. T. F. Hammermeister, of New Ulm, is doing postgraduate work at the New York Polyclinic, New York City.

Dr. Justus Ohage, the distinguished health of-

ficer of St. Paul, will have three rivals in the forthcoming election.

Dr. J. G. Arneberg, of Grand Forks, has been visiting the Eastern clinics for some weeks, and will return about June 20.

Dr. D. A. Herron, of Comfrey, has sold his practice to Dr. A. W. Eckstein, who has practiced some months at that place.

Dr. L. A. Davis, of Dalton, has become associated in practice with Dr. Coulter, of Wadena, to which place he has moved.

The Black Hills Association of South Dakota held its quarterly meeting in Deadwood last month with a good attendance.

Dr. O. H. Michael, who practiced medicine in Vernon Center for over forty years, died in Minneapolis last month at the age of 70.

The Minneapolis Steel Machinery Company, of Minneapolis, has installed an emergency hospital for the care of its injured employees.

We are informed that there is no prospect of a merger of the Cobb and Midway Hospitals, as rumored in the press of the Twin Cities.

Dr. James Farrage, of Park Rapids, has purchased the practice of Dr. D. W. Hammond, of Breckenridge, to which place he will move at once.

The Tri-State Telephone Company began its automatic service in St. Paul last week, and changes its Minneapolis office to this system on September 1.

Dr. S. W. Smith has moved from Henry, S. D., to Watertown, S. D., and become associated with Drs. Bartron & Hammond in the management of the Bartron Hospital.

Dr. J. A. Gates, of Kenyon, is a candidate for lieutenant-governor of Minnesota. A communication endorsing his candidacy appears in another column of this issue.

The City Hospital of Minneapolis graduated last month a class of twenty-four from its nurses' training-school, which is the largest class thus far graduated from the Hospital.

Dr. F. A. Douglas, an eye and ear specialist, who has practiced in St. Cloud somewhat over a year, has moved to Richmond, Ind., where he takes up an old established practice.

Drs. Z. P. King and George Sutton, graduates of the University of Minnesota, 1914, have returned from France, where they were engaged in the American Ambulance Service.

Dr. L. G. Rowntree, Dean of the Department



of Medicine of the University of Minnesota, has received the degree of doctor of science from the Western University of London, Ontario.

The Supreme Court of Minnesota has affirmed the right of a board of education to exclude from the schools any pupils refusing to be vaccinated when an epidemic of smallpox prevails,—and threatens the health of the community.

At the annual meeting of the Minnesota Pathological Society the following officers were elected: President, Dr. W. P. Larson, Minneapolis; vice-president, Dr. J. L. Rothrock, St. Paul; secretary-treasurer, Dr. F. L. Adair, Winnipeg.

There is increased talk of the advisability of turning the Hospital for Inebriates, located at Willmar, into a hospital for insane. The State Board of Control and the State Architect have inspected the building with this purpose in view.

At a meeting, held in Milwaukee in April, of the executive secretaries of the public health associations of the Middle Western states, it was admitted by these secretaries that Minnesota has passed better legislation in regard to tuberculosis sanatoria than any other state in the Mississippi Valley.

The first annual banquet of the Alpha Omega Alpha, the honorary medical fraternity of the University of Minnesota, was given last week. Dr. Geo. Douglas Head, of Minneapolis, was the toast-master, and the following physicians responded to toasts: Drs. Olga Hansen, Charles Drake, J. D. Edgar, S. M. White, Carl F. Jones, and Dean E. P. Lyon.

The Minnesota State Homeopathic Institute, at its annual meeting in Minneapolis last month, elected the following officers for 1917: President, Dr. A. G. Moffat, Howard Lake; first vice-president, Dr. W. C. Roberts, Owatonna; second vice-president, Dr. G. L. Moxey, Minneapolis; secretary, Dr. Herman Kesting, St. Paul; treasurer, Dr. Margaret Koch, Minneapolis.

The North Dakota State Medical Association held its annual meeting at Devils Lake last month. The full transactions of the meeting will appear in our next issue. The following officers were elected: President, Dr. V. J. La Rose, Bismarck; vice-president, Dr. G. M. Williamson, Grand Forks; secretary, Dr. H. J. Rowe, Casselton; treasurer, Dr. W. F. Sihler, Devils Lake.

The seventh semi-annual meeting of the Northwestern Oph-Lar-Rhin-Otic Society will be

held in Omaha on June 8 and 9. Thursday afternoon, June 8, will be devoted to papers on ear, nose, and throat topics by prominent members. After dinner at the University Club several papers on eye subjects will be presented. On Friday, June 9, Omaha members have arranged to hold clinics. Every doctor of the four states whose practice is limited to the eye, ear, nose, and throat, is invited to become a member of this Society.

The following physicians passed the State examination at Helena last month, and were licensed to practice in Montana: J. C. Munch, Culbertson, Mont.; C. W. Bile, Colfax, Wash.; F. J. Caylew, Meeteetse, Wyo.; H. J. Binger, Minneapolis; John W. Olson, Troy, Mont.; Craig Worth, Helena; Roy E. Fisk, Great Falls; B. E. Washburn, Ashber, Mont.; S. G. Arnold, Billings; H. C. Parrish, Flower, Mont.; J. E. Midgett, Sumatra, Mont.; J. C. Storkan, Brainerd, Minn.; L. W. Backett, Plevna, Mont.; Frank C. Davis, Lewistown, Mont.; E. W. Templeton, Havre, Mont.; Niels A. Kaa, Victor, Mont.; K. D. Lynch, Butte; Max A. Dorland, Anaconda; H. J. Robb, Glasgow, and George A. Baker, Ekalaka, Mont.

#### PHYSICIANS LICENSED APRIL 19, 1916, TO PRACTICE IN MINNESOTA

##### UPON EXAMINATION

Gilroy, Earl William.....Rush, 1916  
Preston, Paul J.....Rush, 1915  
Van Dyke, Edith A.....  
Woman's Med. Col., Pa., 1909

##### BY RECIPROCITY

Carhart, William G.....U. of Michigan, 1904  
Crenshaw, John L.....U. of Virginia, 1906  
Ellison, Frank E.....Hahnemann, Chicago, 1910  
Gaunt, Peter F.....P. & S., St. Louis, 1903  
Goldblum, Jacob.....Illinois Med. Col., 1902  
House, Zachariah E.....Columbian, D. C., 1903  
Meyer, Anthony A.....U. of Illinois, 1914  
Olson, Clarence L.....U. of Iowa, 1908  
Pelant, Francis J...Col. of M. & S., Chicago, 1914  
Rosenow, Edward Carl.....Rush, 1902  
Rowntree, Leonard G....London, Ontario, 1905  
Schwartz, William A.....Northwestern, 1911  
Traxler, Felix J.....John A. Creighton, 1915  
Waldren, Henry M....Queen's University, 1898  
Walters, Benjamin F....Medico-Chir., Pa., 1898  
Wildish, Reginald M....U. of Nebraska, 1911

## X-RAY COIL WANTED

A 16-inch coil with mercury interrupter wanted cheap. Must be in first-class condition. Will pay cash. Address 347, care of this office.

## LOCUM TENENCY WANTED

By physician. Nine years' general practice and hospital experience. Licensed in Minnesota but will go anywhere. Address W. H., care of this office.

## FOR SALE

Scheidel-Western radiographic special x-ray coil outfit with tube, stand, and accessories, in good working condition; second-hand. For information address 348, care of this office.

## ASSISTANT WANTED

Assistant wanted to do eye, ear, nose, and throat work, in a central Minnesota city of 5,000. Scandinavian preferred. Position open at once. Address 353, care of this office.

## WANTED, LOCUM TENENCY

Experienced physician and surgeon wishes locum tenency in or near the Twin Cities for any length of time. Very ethical, good presence, good hustler. Speaks German and Scandinavian languages. Address 357, care of this office.

## PHYSICIAN WANTED

I own an almost complete outfit for a doctor's office, both instruments, furniture and library, located at Velva, N. D. The place is open for a Norwegian physician. For further information write the owner, John Elton, Northfield, Minn.

## PRACTICE FOR SALE

A \$4,500 Southern Minnesota practice, collections 100 per cent, in fast growing modern town of 600 with high school, churches, fine business houses, and two railroads. Richest farming country in state, fine roads, excellent opportunity to make money. Residence optional. Address 355, care of this office.

## PHYSICIAN WANTED

In a Southern Minnesota town of 600. Must be up to date, sober, and not afraid of work. Competition very easy. Excellent chance to build up a good general and surgical practice. A competent physician is assured of good support from the start. References requested. Address 358, care of this office.

## LOCUM TENENS WANTED

Wanted, locum tenens for two months, beginning in July. Must be a Mason. A speaking knowledge of German would be helpful. Opportunity of working into partnership if mutually agreeable. Town of 600, in excellent territory in North Dakota. Address 360, care of this office.

## PRACTICE FOR SALE

In a village of eastern South Dakota. Population, 1,000; distance to other doctors, 12, 20, and 24 miles. Snap for any doctor; \$3,000 to \$4,000 business; thickly settled; one competitor; territory as good for business as any in state of same size. Price, \$500, actual cost. Everything A1. Leaving state. For full information address 346, care of this office.

## PARTNER OR PURCHASER WANTED AT ONCE

Partner or purchaser, contract mining practice, on Iron Range, in Northern Minnesota. Modern hospital, 20 beds, complete up-to-date equipment, mines just starting. Future assured. Fine country, community of over 5,000. Good auto roads; run all the year. A rare opportunity for a good live doctor. Small amount of cash. Terms to suit. Address 359, care of this office.

## PRACTICE AND HOSPITAL FOR SALE

North Dakota practice and hospital for sale. No competition. Population, 500. Excellent schools. Thickly settled, large territory. Patronized by a number of doctors of near-by towns. \$3,000 will swing the deal. Practice runs \$6,000 to \$8,000. Modern equipment of hospital. Fine for surgeon. Address Dr. Kammann, Hannah, N. D.

## ASSISTANT WANTED

An able and active assistant, capable of doing surgery, in a general and surgical practice, in a town of about 1,200 in Minnesota, in which I have a good private hospital. Preference will be given to one speaking German and Scandinavian.

This is an opening for partnership to the right man. State when and where graduated, if married or not, and give references. Address 349, care of this office.

## PRACTICE FOR SALE

I offer for sale a \$5,000 rural practice in a rich agricultural and dairy section of central Minnesota. Buildings, lots, and drugs are worth \$6,000. If acted on soon may consider exchange or trade in real estate, etc., as part payment. An exceptional bargain, and a location where money is made from the start. State full particulars in first letter—what you have for exchange and amount of cash. Good reason for leaving. Address 356, care of this office.

## PRACTICE OR PARTNERSHIP WANTED

I desire to buy the practice, or an interest in the practice, of a well-established eye, ear, nose, and throat specialist in the Twin Cities or elsewhere. Have A. B. and M. D. degrees from the University of Minnesota. In general practice eight years, spent past year in post-graduate work in specialty. Licensed in Minnesota, Montana, and South Dakota. Will consider locum tenency for the summer. Address 344, care of this office.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Fueral Septicemia	Accidental Deaths
Ada	1,253	1,432	1														1	
Albert Lea	4,500	5,192	6														1	
Alexandria	2,681	3,001	5														1	
Anoka	3,769	3,972	3														1	
Austin	5,474	6,960	8	1													1	
Barnesville	1,326	1,353	1														1	
Bemidji	2,183	5,099	8														1	
Benson	1,525	1,677	3			1												
Blue Earth	2,900	2,319	1															
Brainerd	7,524	8,526	16															
Breckenridge	1,282	1,840	2				1											
Canby	1,100	1,528	0															
Cannon Falls	1,239	1,385	2															
Chaska	2,165	2,050	0															
Chatfield	1,426	1,226	1															
Cloquet	3,074	7,031	6	1														
Crookston	5,359	7,559	6			1										1	1	1
Dawson	962	1,318	1															
Detroit	2,060	2,807	5			1												
Duluth	52,968	78,466	81	5	1	16	0	0	1	0	0	0	0	0	3	4	0	6
East Grand Forks	2,077	2,533	2						1									
Ely	3,572	3,572	9			2												
Eveleth	2,752	7,036	5									1			1	1		
Fairmont	3,440	2,958	3															
Faribault	7,868	9,001	7	1		3											1	
Fergus Falls	6,072	6,887	9	2					1									1
Glencoe	1,788	1,788	1															
Glenwood	1,116	2,161	0															
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	8	2	1													
Hutchinson	2,495	2,368	4															
International Falls		1,487	2	1		1										1		
Jordan	1,270	1,151	1															
Lake City	3,142	3,142	3			1												
Le Sueur	1,937	1,755	2														1	
Little Falls	5,774	6,078	12			2												
Luverne	2,223	2,540	4			1												
Madison	1,336	1,811	1			2												
Mankato	10,559	10,365	27	1	1	2						2				2		
Marshall	2,088	2,152	1			1											1	
Melrose	2,591	2,591	4			1												1
Minneapolis	202,718	301,408	353	30	8	43	11	1	8	0	1	0	0	1	5	20	3	14
Montevideo	2,146	3,056	5			1												
Montgomery	979	1,267	5															
Moorhead	3,730	4,840	10	3				1										2
Morris	1,934	1,685	2						1									
New Prague	1,228	1,551	2	1														
New Ulm	5,403	5,648	11		1													
Northfield	3,210	3,215	7			2										1	1	1
Ortonville	1,247	1,774	3	1														1
Owatonna	5,561	5,658	5			1												
Pipestone	2,536	2,475	2															
Red Lake Falls	1,666	1,666	6			2												
Red Wing	7,525	9,048	12			1											4	1
Redwood Falls	1,661	1,666	1															
Renville	1,075	1,182	1															
Rochester	6,843	7,844	37	1	1	2										1	9	1
Rushford	1,100	1,011	2			1												
St. Charles	1,304	1,159	2															
St. Cloud	8,663	10,600	8	1													2	
St. James	2,102	2,102	1															
St. Paul	163,632	214,744	242	22	11	21	3	0	0	0	1	0	0	1	4	13	2	19
St. Peter	4,302	4,176	1			1												
Sauk Centre	2,154	2,154	1															
Shakopee	2,046	2,302	3			1											1	
Sleepy Eye	2,046	2,247	4			1											2	
South St. Paul	2,322	4,510	3								1							
Staples	1,504	2,558	2			1												
Stillwater	12,318	10,198	11	1		1											1	
Thief River Falls	1,819	3,174	2			1												
Tower	1,111	1,111	0															
Tracy	1,911	1,826	1															
Two Harbors	3,278	4,990	3	1														1
Virginia	2,962	10,473	12	1		3										1		
Wabasha	2,622	2,622	3															
Warren	1,276	1,613	6			1											1	
Waseca	3,103	3,054	2															
Waterville	1,260	1,273	1															
West St. Paul	1,830	2,660	2			1												
Willmar	3,409	4,135	6	1		1												
Winona	19,714	18,583	25	1	1	4	1										1	3
Winthrop	813	1,043	1															
Worthington	2,386	2,386	1														1	



## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian .....	1,258	1,112	0															
Aitkin .....	1,719	1,633	0															
Akeley .....			0															
Appleton .....	1,184	1,221	1															
Belle Plaine .....	1,121	1,204	3	1														
Biwabik .....		1,690	4			1												1
Bovey .....		1,377	0															
Browns Valley .....	721	1,058	1															
Buffalo .....	1,040	1,227	2															1
Caledonia .....	1,175	1,372	3			1										1		
Cass Lake .....	546	2,011	2															
Chisholm .....		7,684	9			2				1		1						2
Coleraine .....		1,613	0															
Delano .....	967	1,031	0															
Farmington .....	733	1,024	0															
Fosston .....	864	1,055	2	1														
Frazee .....	1,000	1,645	1															
Grand Rapids .....	1,428	2,239	1															
Hibbing .....	2,481	8,832	9	1		2				1						1		
Jackson .....	1,756	1,907	3															
Janesville .....	1,254	1,173	0															
Kenyon .....	1,202	1,237	1															
Lake Crystal .....	1,215	1,038	2															
Litchfield .....	2,280	2,333	2															
Long Prairie .....	1,385	1,250	3			1												
Madelia .....	1,272	1,273	2															1
Milaca .....	1,204	1,102	1															
Mountain Lake .....	959	1,081	0															
Nashwauk .....		2,080	2															1
North Mankato .....	939	1,279	2													1		
North St. Paul .....	1,110	1,404	0															
Osakis .....	917	1,013	3													1	1	
Park Rapids .....	1,313	1,850	3			1												
Pelican Rapids .....	1,033	1,019	0															
Perham .....	1,182	1,376	3	1	1													
Pine City .....	993	1,258	2													1		
Plainview .....	1,038	1,175	0															
Preston .....	1,278	1,193	0															
Princeton .....	1,319	1,555	2													1		
St. Louis Park .....	1,325	1,743	3	1														
Sandstone .....	1,189	1,818	0															
Sauk Rapids .....	1,391	1,745	2															
South Stillwater .....	1,422	1,343	0															
Springfield .....	1,511	1,482	1															1
Spring Valley .....	1,770	1,817	3			1										1		
Wadena .....	1,520	1,820	6												1			
Wells .....	2,017	1,755	1															
West Minneapolis .....	2,250	3,022	2			1												
Wheaton .....	1,132	1,300	1															
White Bear Lake .....	1,288	1,505	1															1
Windom .....	1,944	1,749	3	1														
Winnebago City .....	1,816	2,555	2													1		
Zumbrota .....	1,119	1,138	1															
STATE INSTITUTIONS																		
Anoka, Asylum .....			2	1														
Faribault, School for Blind .....			0															
Faribault, School for Deaf .....			1															
Faribault, School for Feeble Minded .....			9															
Fergus Falls, Hospital for Insane .....			9	2														
Hastings, Asylum .....			5															
Minneapolis, Soldiers' Home .....			12															1
Owatonna, School for Dependents .....			0															
Red Wing, State Training School .....			0															
Rochester, Hospital for Insane .....			6															
Sauk Centre, Home School for Girls .....			0															
St. Peter, Hospital for Insane .....			9	1														
St. Cloud, State Reformatory .....			0															
Stillwater, State Prison .....			2	2														
OTHER PARTS OF STATE			821	75	14	81	3	7	13	0	15	1	1	3	26	58	4	33
Total for state .....			2032	166	40	216	18	10	25	0	23	1	1	6	50	137	15	94

\*No report received. REGISTRAR not doing his duty.  
145 stillbirths not included in above totals.

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## **Obstipation---Stasis---Autotoxemia**

hastens the process

To treat this Syndrome requires perfect lubrication.

Perfect lubrication calls for INTEROL.

### *Why experiment?*

INTEROL has correct body, effective viscosity; no suggestion of flavor or odor (even when heated to 100° C.); has been hyper-refined and is safe.

INTEROL SECURES RESULTS IN HANDS THAT

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So does any instrument  
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**LUBRICATING JELLY**

### **Friction's Antidote**

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Is greaseless and water-soluble. Does not stain or irritate. Economical, convenient. Also for pruritus, the surgeon's hands, burns, skin irritation, bed sores, etc.

At all druggists. Booklet on request.



### *“When the doctor comes the pain goes.”*

For the doctor's use,—

**K-Y ANALGESIC**

which is Prompt to act.  
Prolonged in effect.  
Safe to use.

Water-soluble, greaseless,  
convenient, economical—

**K-Y ANALGESIC**

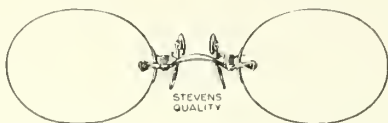
For the relief of neuralgia, headache, rheumatic pain, sore or stiff joints, etc.

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*Fee-table mailed on application*

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## Live virulent organisms retard immunization.

Dead or devitalized organisms rapidly produce immune bodies. PROPHYLACTIC IMMUNIZATION has demonstrated this fact; Therapeutic Inoculation is doing so in ACUTE and CHRONIC INFECTIONS. Greater and more rapid immunity can be established with a vaccine than from an infection.

If you have a case of ACUTE INFECTION give it an injection of VACCINE in some healthy tissue which will be stimulated without deleterious results to antibody production.

We have had extensive experience with severe cases and may be of service to you.

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for the determination of

**Sugar in the Blood Creatinin in the Blood**  
**Urea in the Blood Uric Acid in the Blood**  
**Total Nitrogen in the Blood**  
**Non-Protein Nitrogen in the Blood**

These analyses are of aid in determining whether a given patient has gout or rheumatism. They will help in the diagnosis of nephritis in its various forms and possible complications. Finally, they will give definite pictures of the conditions of diabetic patients, and will, therefore, aid in the choice of proper dietetic treatment for them.

*Send for special information concerning these tests*

## Autogenous Vaccines - \$5.00

The *exciting* organism is identified and isolated. Cultures are made both aerobically and anaerobically. The vaccine is furnished in a single half-ounce container or in ampules in graduated doses. Culture media, with directions for collecting specimens, sent gratis upon request.

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The classical test is made. The various modifications will be made upon request, without additional charge.

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**Tissue - - - - \$5.00**

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*Sterile Containers with Instructions  
Sent Gratis Upon Request*

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(INCORPORATED)

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5 S. Wabash Ave.

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## PUBLISHER'S DEPARTMENT

### THE A. M. A. MEETING

The 1916 meeting (June 12-16 at Detroit, Mich.) of the A. M. A. is certain to be a great meeting, and to bring profit and enjoyment to every physician who attends it.

The arrangement for going in a group or groups commends itself to all physicians, and those who leave the Twin Cities on the Milwaukee line will find the accommodations unsurpassed, and will meet a large and genial body of men to travel with and perhaps to become acquainted with.

Berths should be secured at once so that complete arrangements may be made for special cars. Ladies will be looked after by special escorts.

### BORDEN'S MILK

Condensed milk has a well-recognized place in the dietary of infants and invalids; and when it is used the milk of the highest grade should be used. One rarely thinks and speaks of condensed milk apart from the name "Eagle," so great has become the name of Gail Borden's product. This would not be true were not the quality the highest obtainable by scientific management in the preparation, as well as the selection, of this product of the dairy.

Physicians may well specify the Eagle brand when prescribing condensed milk.

### A NEW SNOOK X-RAY TRANSFORMER

The Snook-Roentgen Manufacturing Co., of Philadelphia, have recently placed a new model of their well known transformer on the market. These pioneer manufacturers of the Interrupterless Transformer are now specializing on this feature of their line and in this latest model of their machine they have made a number of innovations.

The electrical principles of the old Snook machine have been retained but the improvements and refinements of the control have made it the simplest in the country to operate.

Noyes Bros. & Cutler, of St. Paul, are the Northwestern distributors, and report greatly increased sales since the Snook Company have started deliveries on this machine. They have one of the new machines for demonstration purposes in their show-rooms at all times, and will be very pleased to demonstrate its superiorities to those interested.

### A MINERAL WATER BOTTLED UNDER SANITARY PRECAUTIONS

It is a matter of common knowledge that prior to the war a great deal of money was being annually spent in Europe on mineral waters. During the past year or so this has, of course, largely stopped, and the money diverted to better channels. There are in America some mineral springs better than any European product. We refer particularly to the French Lick Springs, the home of Pluto Water. Every provision has been made to protect the water from any form of contamination, being bottled immediately at the springs under the most careful supervision with every known sanitary precaution to insure the purity of this famous water.

Pluto Water is not a strong purgative, the use of which is calculated to produce reaction and to defeat the ends for which it was employed. On the contrary, it has a genuine aperient effect, and its use for a comparatively short period will abolish constipation and induce regular habits. Pluto Water is especially valuable as its analysis will demonstrate in the treatment of gout, chronic rheumatism, obesity and nephritis. In chronic intestinal stasis Pluto Water is as valuable as in ordinary or commencing constipation, and its employment will seldom fail to relieve the condition.

Samples and literature will be forwarded promptly upon application to the French Lick Springs Hotel Company, French Lick, Indiana.

### TO DETROIT AND THE A. M. A. MEETING, VIA ROCHESTER

Many physicians who are going to the A. M. A. meeting will be glad to know that they can buy tickets that will give the stopover privilege at Rochester, and thus enable them to spend a day or two at the Mayo Clinic without extra railway fare.

The Chicago Great Western will sell such tickets from the Twin Cities to Detroit with this stopover privilege, and at special rates.

A pleasant party will be formed by the number going this way, and no man who has not visited the Mayo Clinic will regret the day or two extra time taken out of his vacation for this purpose.

The train time for such a visit is perfect, as the train leaves Rochester at 8:35 P. M., and reaches Chicago at 7:50 A. M.

For detailed information and reservations, address the Chicago Great Western Railway, Minneapolis or St. Paul.

### INTEROL

The world is full of fallacies, and is fed upon half truths. It drinks in sophistry, and then wonder is expressed that the millennium is so long deferred. Take for instance, the unfortunate use of the terms "expensive" and "high-priced," or of "costly" and "cheap."

Price, be it high or low, is what one *pays*, it has nothing to do with what is received.

Quality on the other hand, is what one gets, or fails to get. Service, ditto.

A useless, or inferior article or service, even when bought for a low price, is expensive and costly. On the other hand, the better or higher the quality or the service that is obtainable, the higher the price, which is a great natural law. Hence, *high-priced* should and usually does mean, *high quality or service*. In fact, a moment's reflection will show that the impression created in the mind of a person of average intelligence by the word "cheap" applied to a person or a thing, suggests inferiority. A cheap person or thing is apt to prove the most expensive. A high-priced person or thing usually turns out to be the most economical.

And, it is a most important fact that this applies with especial force to therapeutic agents of any kind intended for use by the physician, and with fulminant emphasis to drugs or agents that have to be put into the human body.

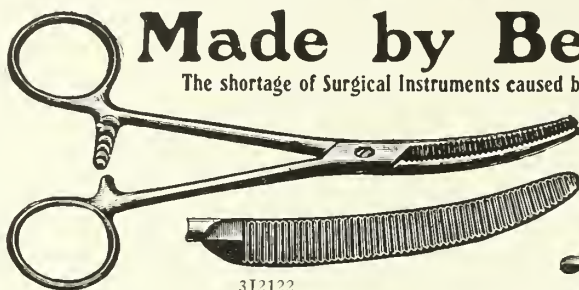
The physician who hesitates or is influenced by "high price," provided he knows the reputation and standing of the parties marketing the product, is false to his obligation to himself and to his patient.

All of which applies with especial force to mineral oil and particularly to Interol.

# Made by Betz in America

The shortage of Surgical Instruments caused by the European war is now largely a thing of the past

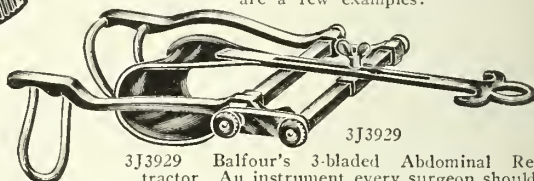
Our enormous manufacturing facilities, aided by new methods and improved equipment, enable us to maintain the position which price and quality have given us for 20 years in the Surgical Instrument field. Here are a few examples:



3J2122

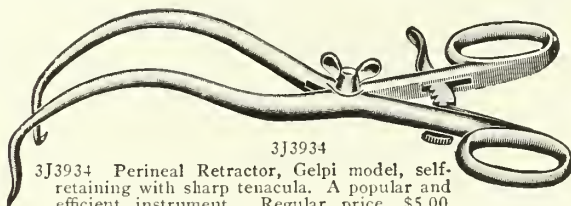
3J2122A Ochsner's Haemostatic Forceps, 6 inches, curved, long, screw lock, round shank, cross serration, as shown, each ..... **\$1.00**

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3J3934 Perineal Retractor, Gelpi model, self-retaining with sharp tenacula. A popular and efficient instrument. Regular price, \$5.00. Special price..... **\$3.50**; weight, 10 oz.

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A  
Rational Procedure  
in  
Summer Diarrhea

## For Infants of any age

Mellin's Food

4 level tablespoonfuls

Water (boiled, then cooled)

16 fluidounces

Give one to three ounces every hour or two, according to the age of the baby, continuing until stools lessen in number and improve in character.

Milk, preferably skimmed, may then be substituted for water—one ounce each day—until regular proportions of milk and water, adapted to the age of the baby, are reached.

BOSTON MEDICAL  
JAN 28 1917

# THE JOURNAL-LANCET

The Journal of the Minnesota State Medical Association  
and Official Organ of the  
North Dakota and South Dakota State Medical Associations

PUBLISHED TWICE A MONTH

VOL. XXXVI

MINNEAPOLIS, JUNE 15, 1916

No. 12

## TRANSACTIONS OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION—TWENTY-NINTH ANNUAL MEETING, 1916

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#### AMERICAN MEDICAL ASSOCIATION

CHARLES MacLACHLAN, M. D.....New Rockford

#### Alternate

J. P. AYLEN, M. D.....Fargo

## Proceedings of the House of Delegates

### FIRST SESSION—TUESDAY, MAY 9TH

The House of Delegates met at 2 P. M. on May 9, 1916, in the parlor of the Great Northern Hotel, Devils Lake. There were present, in addition to the President and Secretary, Councilors G. F. Drew, W. P. Baldwin; Delegates C. J. McGurgen, L. D. Bristol, A. A. Whittemore, and W. M. Hotchkiss.

The President appointed Doctors McGurgen, Bristol, and Whittemore a committee on credentials. They made their report and the Delegates present were seated. The minutes of the last annual meeting were read and approved as printed in THE JOURNAL-LANCET. The Secretary submitted his annual report as follows:

### SECRETARY'S REPORT

The officers of the North Dakota Medical Association have been surfeited with literature during the past months in reference to first aid in accidental wounds. North Dakota is one among twenty states that have not appointed a first-aid committee, and repeated requests have been made insisting upon such an appointment. The plan is to correlate the opinions of surgeons as to what the layman should be instructed to do in case of accidental wounds, what material should be furnished him for this treatment, and where the material should be distributed. In the second place it is desired to ascertain and correlate what surgeons do themselves when they have an accidental wound to treat. The Board of First Aid Standardization appointed by the President of the United States and Canada make their report to the secretary, Joseph Colt Bloodgood, M. D., Baltimore, Md. Five questions have been submitted to a large number of surgeons, and the different



committees should not only accumulate, but also correlate, their own material, so that their reports may constitute independent investigations, if it is thought advisable to appoint such a committee.

Literature in explanation of the objects sought will be turned over to the committee. The medical journals, in conformity with a plan inaugurated by the Committee on Cancer appointed by the Medical Society of Pennsylvania, printed a large number of articles and editorials on cancer during the month of July, 1915. Whether the request that local societies should have a special symposium on cancer at their June meetings was carried out by the component societies in this state, I have not been advised.

#### MEMBERSHIP

For some unaccountable reason, probably through the activity of the local secretaries, our membership has increased so that we report 358 active members, in contrast with 319 in our last annual report. The solicitor furnished us by the American Medical Association has the credit of twenty-five additions, most of whom would have been secured by the local societies.

It is a pleasure to report the organization of an additional component society, Kotana, at Williston, Oct. 19, 1915, with twelve members. The name Kotana is significant. It is formed of the last two syllables of Dakota and Montana, and is a credit to the ingenuity of the doctors composing the Society; and the aggressiveness of the Society is further shown in that they have two men on the State Association program. The name was originated because some of the doctors living on the edge of Montana desired to unite, and have united, with the Society. This new Society indicates that they are pushers, and, if they continue as they have begun, we bespeak for them great success.

#### MEDICAL DEFENSE

To date no expense aside from the annual retainer to the attorneys has been incurred during the past year, except as shown by two vouchers: the one a balance directed by the House of Delegates to be paid Dr. W. W. Wood, the other an indebtedness to Dr. F. A. Brugman of fifteen dollars in the Clark suit, incurred prior to the dismissal of the suit. The number of malpractice suits begun will be found in the report of the Committee on Medical Defense, and the progress of the several suits will be presented by the counsel of the State Association.

#### ANNUAL REPORTS

The annual reports of the local secretaries continue to be slow in coming in, ranging all the way from January to April 8, while the maximum limit is February 15. This disparity has not been due wholly to the negligence of the secretaries, since, in a number of instances, the secretary was elected and came into possession of his office to find that no collection of dues had been made prior to his election, and, being new in the business, it required considerable correspondence by the secretary to get the members persuaded to pay their annual dues, tardiness being one of the besetting sins of many physicians when it comes to paying out money.

#### NATIONAL LEGISLATIVE COMMITTEE

There is held annually in Chicago a midwinter conference composed of the Federation of State Medical

Boards of the United States and the Council on Health and Public Instruction. This conference consists of those who are selected to represent the various states; and questions are discussed by very able men and reports are made by the representatives as to the medical legislation that has been enacted in the several states during the year. The President appointed me to attend the conference as the representative of this state; but as no appropriation had been made for that purpose I did not feel inclined to bear the expense of such a trip. We were among the very few states that were not represented.

The question of a uniform health law was presented and discussed in many of its phases, and the opinions were widely divergent; but the council is hopeful to unite the different factions and ultimately secure a uniform health law that will meet the conditions in the several states.

#### THE JOURNAL-LANCET

The subscriptions to THE JOURNAL-LANCET have varied from 278 in January, 1915, to 329 in December, for which we have paid the publishers to January 1, 1916, \$317.27. The papers read at our annual meeting in 1915 were all published with one exception, which talk was not in manuscript and was not furnished the Association.

Fraternally submitted,

H. J. ROWE, M. D.,  
Secretary.

Drs. I. D. Bristol, W. M. Hotchkiss, and C. J. McGurran were appointed a committee on officers' reports.

A communication was read from the New Jersey Medical Society calling the attention to the one hundredth anniversary of the Society, and desiring the name of the President of the Association so that a personal invitation could be sent to him to attend the meeting. The Secretary was instructed to furnish the information desired in a courteous reply.

A communication was submitted by Dr. Bristol containing the following joint resolution introduced in the United States Senate by Senator Works of California:

WHEREAS, the American Medical Association is a national organization of physicians and surgeons of one school of medicine only, and intended to advance the personal and private interest of its members; and—

WHEREAS, one of the objects of said Association, actively and aggressively prosecuted, is to procure legislation, state and national, in the interest of the school of medicine represented by it and against all others; and—

WHEREAS, the Public Health Service of the United States is intended to represent all classes of people of all medical or non-medical beliefs in national and interstate affairs; and—

WHEREAS, the Surgeon-General of the Public Health Service has been elected president of said Association, and other officers of the service have become members thereof; and—

WHEREAS, it is believed that the best interests of the Public Health Service and of the people require that its officials and employees be free from influence or control by any school of medicine or mode of healing, now *therefore, be it*

*Resolved* by the Senate and House of Representatives of the United States of America in Congress assembled that it shall be unlawful for any officer or employee of the Public Health Service of the Government to be or become a member or officer of, or in any way connected with, any medical or private health association or organization of any kind.

The committee reported that the passing of such a resolution by the Congress of the United States would seriously handicap antituberculosis and other public-health and medical work, as well as impair the efficiency of the United States Public Health Service. The committee further recommended that the National Association for the Study and Prevention of Tuberculosis be advised of our sympathy that individual members of the Association be requested to write to friends in Congress, and that the Secretary be requested to write to our Senators and Congressmen of the seriousness of such a situation, and ask their united opposition to such an abridgment of individual rights. The report of the Committee on Public Policy was adopted without a dissenting vote.

On motion of Dr. W. M. Hotchkiss a committee of three was appointed on medical legislation, consisting of Drs. H. F. French, E. P. Quain, and J. P. Alyn. A communication on American First Aid Conference was referred to the committee on Public Health. The committee made the following report, which was adopted:

WHEREAS, a movement has recently been inaugurated in the form of an American First Aid Conference, and—

WHEREAS, the purpose of this movement is to recommend a standard on first-aid methods, packages, equipment, and instruction; and—

WHEREAS, The North Dakota State Medical Association has been asked to co-operate with other state medical associations by naming a first-aid committee, *therefore, be it*

*Resolved*, that the North Dakota State Medical Association recommends that the Association be instructed to forward the names of the members of such a committee to Dr. J. C. Bloodgood, secretary of the American First Aid Conference.

A resolution was introduced by Dr. W. M. Hotchkiss to amend Sec. 3, Chapter IV of the by-laws so as to make six, instead of ten, delegates a quorum. This was laid over for a day.

## SECOND SESSION—TUESDAY, 8 P. M.

The House of Delegates convened at the call of President V. H. Stickney. There were present Drs. Healey, Bristol, Trainor, Altnow, Meigs, Whittemore, Hotchkiss, Baldwin, Golseth, Green, Drew, Campbell, and MacLachlan. The minutes of the preceding meeting were read and approved.

### COUNCILORS' REPORTS

Dr. Wm. P. Baldwin reported that the Sheyenne Valley District Medical Society had every eligible man in the district enrolled as a member of the Society. The Society has adopted a resolution to cut out all cards of physicians in the newspapers.

Dr. R. D. Campbell reported that the Grand Forks District Society had held five meetings during the year, the attendance being fairly good. He said that it took considerable drumming to get papers for the meetings. They hold no meetings during the summer months. There is harmony among the members.

Dr. G. F. Drew reported that the Devils Lake District Society was composed of five counties, in which there were fifty-four physicians, thirty-one of whom are members of the Society, an increase of four during the year. The Society is growing, the attendance is fair, and the Society is harmonious.

Dr. G. Golseth, of Stutsman County, reported that they have held regular meetings, with good programs, and have added to their membership. The last meeting will be held in June, with no other meetings during the summer months. The Society has done well.

Dr. Chas. MacLachlan reported that the Tri-County Society hold their meetings mostly during the summer months, using central points for the meeting-place. The Society is small. During the winter months the meetings are held regularly every two months, are generally well attended, and harmony exists among the members.

Dr. L. B. Green reported that the Southern District Society have held their meetings quite regularly, with more interest manifested during the past year than formerly. The district is large, and the members are widely scattered. When the roads are good the attendance is better because the men can come by auto.

Dr. F. R. Smyth, Councilor of the Sixth Medical District, reported that the local societies had all done well during the year, and that there had been a great increase in membership.

## TREASURER'S REPORT

*Receipts*

Date	Society	No. Receipt	Amt.
5-8-15	Northwestern Dist. Soc.	88	\$ 5.00
5-18-15	Southwestern Dist. Assoc.	89	5.00
6-1-15	Grand Forks Dist. Soc.	90	5.00
6-8-15	Tri-County Soc.	91	5.00
7-19-15	Southern Dist. Soc.	92	5.00
7-26-15	Shyenne Valley Soc.	93	5.00
7-31-15	Trail-Steele Co. Assoc.	94	5.00
8-4-15	Trail-Steele Co. Assoc.	95	5.00
9-10-15	Southwestern Assoc.	96	5.00
9-13-15	Richmond Co. Soc.	97	15.00
10-5-15	The Northwestern Dist. Soc.	98	5.00
10-5-15	Southwestern Dist. Soc.	99	5.00
10-5-15	Cass County Assoc.	100	10.00
10-23-15	Tri-County Soc.	101	5.00
11-10-15	Traill-Steele Co. Soc.	102	5.00
12-15-15	Sixth Dist. Soc.	103	5.00
1-22-16	Southern Soc.	104	65.00
1-28-16	Cass County Soc.	105	90.00
2-4-16	Sixth Dist. Soc.	106	160.00
2-4-16	Traill-Steele Co. Soc.	107	35.00
2-11-16	Stutsman Co. Soc.	108	85.00
2-14-16	Devils Lake Dist. Soc.	109	135.00
2-21-16	Cass County Assoc.	110	70.00
2-22-16	Traill-Steele Co. Soc.	111	10.00
2-24-16	Richland County Soc.	112	55.00
3-2-16	Southern Soc.	113	5.00
3-2-16	Richland County Soc.	114	5.00
3-2-16	Shyenne Valley Soc.	115	115.00
3-4-16	Cass County Soc.	116	15.00
3-4-16	Southwestern Dist. Soc.	117	55.00
3-4-16	Kotana Soc.	118	40.00
3-4-16	Tri County Soc.	119	55.00
3-9-16	The Northwestern Dist. Soc.	120	305.00
3-17-16	Richland Co. Soc.	121	10.00
3-17-16	Kotana Soc.	122	10.00
4-7-16	Stark Co. Soc.	123	95.00
4-7-16	Cass Co. Assoc.	124	5.00
4-11-16	Grand Forks Dist. Soc.	125	285.00
12-10-15	Grand Forks Dist. Soc.	126	6.68
4-14-16	Devils Lake Dist. Soc.	127	20.00
4-14-16	Tri County Soc.	128	15.00
4-17-16	Kotana Med. Soc.	129	5.00
4-17-16	Traill-Steele Co. Soc.	130	5.00
4-29-16	Grand Forks Dist. Soc.	131	10.00
5-1-16	Cass County Assoc.	132	10.00
Total Receipts			\$1,871.68

*Disbursements*

Date	Name—Purpose	Voucher No.	Amt.
5-24-15	H. J. Rowe, commissions, postage express	141	\$190.00
5-24-15	V. J. LaRose, entertainment	140	75.00
6-25-15	W. W. Wood, balance due on malpractice suit	142	50.00
6-24-15	Journal-Lancet, subscription to July 1, 1915	143	152.19
7-10-15	J. C. Lowe, stenographic work, Bismarck meeting	144	100.00
9-1-15	American Med. Assoc., supplies (draft)	145	3.50

9-11-15	H. J. Rowe salary	146	100.00
10-28-15	Potter & Potter, printing and supplies	147	5.50
11-23-15	H. J. Rowe, salary	148	100.00
12-10-15	Journal-Lancet, 329 members to Dec. 31, 1915	149	165.08
12-23-15	Bosard & Twiford, retaining fees	150	300.00
2-5-16	American Med. Assoc., card blanks	151	4.50
2-21-16	Dr. F. A. Brugman, expense Clark-Erenfeld	152	15.00
4-13-16	M. L. Adler, 25 members solicited for membership	153	25.00
4-17-16	Dr. G. F. Drew, scientific committee	154	10.00
5-4-16	Potter & Potter, programs and letter heads	155	21.00
5-4-16	H. J. Rowe, commissions and stationery	156	216.15
Total expenditure			\$1,533.17

	Dr.	Cr.
May 25, 1915—Cash on hand	\$ 581.49	
Sept. 13, 1915—Drawn from saving department	200.00	
Dec. 11, 1915—Drawn from saving department	200.00	
Dec. 23, 1915—Drawn from saving department	300.00	
Cash receipts from May, 1915, to May 4, 1916	1,871.68	
Disbursements from May 24, 1915, to May 4, 1916		\$1,533.17
Cash balance on hand		1,620.00
Total	\$3,153.17	\$3,153.17

*Savings Account.*

Sept. 10, 1915—Cash on hand (including interest, \$12.40)	\$1,348.40	
Sept. 13, 1915—Cash withdrawn		\$ 200.00
Dec. 11, 1915—Cash withdrawn		200.00
Dec. 23, 1915—Cash withdrawn		300.00
Jan. 1, 1916—Interest to date	13.51	
Jan. 1, 1916—Balance		661.91
Total	\$1,361.91	\$1,361.91
General Fund		\$1,620.00
Savings Fund		661.91
		\$2,281.91

Respectfully submitted,

W. F. SIHLER, M. D.,  
Treasurer.

A communication from the Association of the U. S. Indian Medical Service was referred to the Committee on Public Policy and Legislation. The Committee made the following report, which was adopted:

WHEREAS, it has been brought to our attention that the organization, pay, perquisites, and opportunities of the employees of the Indian Medical Service are de-



plorable and much below those of the other governmental medical services, and—

WHEREAS, this condition of affairs is necessarily reflected in the work of the organization, *therefore be it*

*Resolved*, that it is the sentiment of this Association that the Indian Medical Service should be reorganized and improved, possibly by being merged with the United States Public Health Service.

The Scientific Committee reported that their work was done largely by correspondence. Some difficulty was experienced in getting the requisite number of suitable papers; but the greatest difficulty was encountered in getting answers from the secretaries of the local societies.

Meeting adjourned until Wednesday morning.

### THIRD SESSION—WEDNESDAY, MAY 10TH

The House of Delegates, instead of meeting in the morning as per adjournment, were obliged to postpone their meeting until 2 P. M., when they were called to order by President Stickney. There were present Drs. Healy, McGurran, Bristol, Trainor, Carr, Zimmerman, Altnow, Meigs, Whittemore, Cosgrove, Hotchkiss, Baldwin, Golseth, Green, Smyth, Drew, Campbell, Nicholson, and MacLachlan.

### REPORT OF THE COMMITTEE ON TUBERCULOSIS

To House of Delegates of the North Dakota Medical Association:

Your committee begs leave to report that from the most authentic information obtainable, tuberculosis still continues to be a great menace to the health and lives of our people. We believe, however, that the educational propaganda that has been kept up for the past few years is having its effect in lessening the disease. The Federal Census Bureau reports that in one decade, from 1904 to 1914, the death-rate from tuberculosis in all its forms fell from 200.7 to 146.8 per 100,000. This is a drop of over 25 per cent, and is accounted for as a result of a more general understanding of the laws of health, the importance of fresh air, rest, etc., and the efforts of various societies for the prevention of the disease. The acceptance of the belief that tuberculosis infection for the most part occurs in childhood is an important factor in our knowledge of the disease. The hope of a cure continues to rest largely on early diagnosis. The symptom-group which we once accepted as indicating early tuberculosis, is now accepted as meaning advanced tuberculosis; and early diagnosis will rarely be reached by the physician who relies alone upon physical examination and the finding of the bacilli in the sputum. The "fat content" of sputum is still in the investigational stage, but promises fair to be a distinct advance in diagnosis. Your committee believes that marked progress has been made by the profession along the lines of early recognition of the disease.

During the past year, under the systematic superintendency of Dr. J. G. Lamont, very great improvements

have been made at the State Sanatorium. The appropriations mentioned in our last report have been wisely expended, and the institution's capacity for service has been greatly increased thereby.

During the year the anti-tuberculosis movement has lost by death two of its most honored and valued workers,—Edward Livingstone Trudeau, of Saranac Lake, New York, and Theodore B. Sachs, of Chicago. Dr. Trudeau was one of the first to advocate the open-air treatment for tuberculosis. He was early infected with the disease, and demonstrated on himself the efficacy of the plan. Not content with enjoying the health and strength which life in the open had given him, he must needs tell his ailing brother the "better way"; and the sanatorium treatment for the tuberculous sprang into being. Who can measure the worth to mankind of such a life? Who can say to what extent it inspired and influenced noble thoughts and worthy deeds in those who came within its sway? and who can say how far it may be projected into the future? Dr. Sachs was a clinician of skill, a gentleman of culture, and an administrator of marked and tried ability. At the time of his death he was president of the National Association for the Study and Prevention of Tuberculosis. In a spirit of self-sacrifice and devotion to the cause of humanity he has given the best of his life to the anti-tuberculosis campaign.

We further beg leave to report that the North Dakota Anti-Tuberculosis Association, which from its organization has had the indorsement of your Association, still continues to be an active factor in public-health work. During the past year it has conducted a publicity campaign through periodicals, literature, addresses, and exhibitions, and has in other ways contributed its quota of influence in modifying, if not in creating, antituberculosis sentiment among the people. It has not been content, however, with moulding public opinion. It has during the past year a very tangible asset to its credit. At the Sanatorium a number of young people were being treated who had through various causes been denied the privilege of receiving even a fair education. The North Dakota Antituberculosis Association recognized this condition and with the co-operation of the Board of Control and Superintendent Lament, equipped an open-air school, engaged a teacher, and are defraying all the incurred expenses out of funds derived from the sale of Red Cross Christmas Seals. The results have been very encouraging, indeed. This worthy object should appeal to everyone who is in sympathy with the need of the unfortunates who are handicapped by reason of their disabilities. Think of what an education will mean to those young people when they are physically able to leave the institution. It will supply them with a ready and efficient weapon in the battle of life, opening up opportunities for honorable, independent, self-support.

Dr. Carrol Fox, Surgeon United States Public Health Service, last September and October made a survey of public-health conditions in North Dakota. In his report he says: "There is in the state an antituberculosis society. Its activities are legitimately those of a state health department and of such great importance to the community that the state should recognize its obligations to its citizens, take over these activities, and place them in a well-organized health department, capable of making the necessary investigations and exercising

the proper advisory and supervisory control over the disease."

With these findings and recommendations, the Association is in complete accord, but until the state sees fit to place its Department of Public Health on a higher plane of organization and efficiency than it has in the past, it can see no other honorable course open than to go on with its work as formerly. It was the lack of support from the state that fostered a demand for it. We feel that its existence has been justified by its record of service.

All of which is respectfully submitted:

JAS. GRASSICK, M. D.  
F. DUNN QUAIN, M. D.  
V. H. STICKNEY, M. D.  
J. ROY RINGO, M. D.

Committee.

#### REPORT OF THE COMMITTEE ON NECROLOGY

To the House of Delegates, North Dakota Medical Association:

Since our last meeting seven of our number have ceased from labor, and have gone to receive the approbation of the Master for work well done.

The life of a physician is a constant struggle with disease and death. So deeply engrossed is he in the weal of his patients that the care of self too often becomes a secondary consideration. In the mansion and in the hovel, for the rich and for the poor, in the homes of refinement and in the dens of vice, among the worthy and the worthless, wherever there is a wound to heal, a pain to assuage, suffering to relieve, or a life to prolong, he can always be depended on to do his part and to do it better than any other individual or agency that has been evolved in the development of our civilization. With the work and worry that are incident to the demands on his energies it is no wonder that so many of our fellows succumb to the inevitable ere the evening shadows fall. We know them for a little while, we work side by side, we realize the good that is in them, we learn to love them; they cease to be, and we reverently lay them away, trustfully hoping that in the mysterious beyond we may once again reach out and clasp the waiting hand.

The lives of our fellow craftsmen are pleasant memories that we fain would perpetuate. The least we can do is to enroll their names among our honored dead, and thus pay tribute to their worth, to their virtue, and to their steadfast adherence to the ideals of our profession.

"Peace to the just man's memory:

"Let it grow green with years,

"And blossom through the flight of ages."

CHARLES STANLEY CRANE

Dr. Charles Stanley Crane was born in Ontario in 1862, and died at Grand Forks, North Dakota, December 31, 1915. He emigrated to North Dakota when a mere lad. He graduated from the Medical Department of the University of Michigan in 1889, and later spent a year in Chicago, where he studied his specialty,—eye, ear, nose, and throat. With the exception of one year in Milwaukee, Wisconsin, his medical work was in Grand Forks, North Dakota.

Dr. Crane was one of our well-known physicians, and

he enjoyed a lucrative practice. In his State Association he held the honorable position of treasurer for a number of years, and was its Delegate to the American Medical Association for several successive terms.

Dr. Crane was a gentleman of pleasing personality, kindly disposition, and ready wit. Stricken early with a malady that handicapped him through life, he kept his troubles to himself, made a valiant and heroic fight against the disease, and to the very last bravely faced the inevitable with a smile. His remains were laid to rest by his fellows in Memorial Park, Grand Forks.

WILLIAM SCANLAN

Dr. William Scanlan, of North Dakota, was born August 18, 1869, and died August 23, 1915, at Mitchell, South Dakota. He graduated from Hamline, Minn., 1896, received his license for North Dakota the same year, and engaged in the practice of his profession at Page, North Dakota. He was a member of the Cass County Medical Society and the North Dakota Medical Association, and a Fellow of the American Medical Association. He was city health officer of Fargo at the time of his death.

RICHARD JEROME CHURCH

Dr. Richard Jerome Church was born at Irish Creek, Ontario, December 8, 1870, and died at Park River, North Dakota, August 15, 1915. His advanced literary education was obtained at our State University. His medical training was from Bellevue, New York, and Hamline, Minneapolis. He graduated from the latter institute in 1895. He completed a post graduate course at New York Polyclinic a short time before his death. He received his state license in 1895, and practised his profession at Park River, North Dakota. He was an honored member of the Grand Forks District Medical Society and the North Dakota Medical Association, as well as a Fellow of American Medical Association.

MALCOM A. STEWART

Dr. Malcom A. Stewart was born 1869, and died August 31, 1915. The call came suddenly while he was hastening to the bedside of a patient to relieve suffering. He graduated from the University of Minnesota in 1902, received his state license the same year, and began practice at Omamee, North Dakota, where he remained till his death.

EDGAR D. SPEAR

Dr. Edgar D. Spear was born 1861, and died at Fargo, North Dakota, in 1915. He was a member of his local society and the State Association, and a Fellow of the American Medical Society. He graduated in 1901 from Minneapolis College of Physicians and Surgeons, was admitted to practice in 1904, and located at Nome, North Dakota, where he remained till his death.

WILLIAM MCCANDLESS BARTLEY

Dr. William McCandless Bartley was born in Butler County, Pennsylvania, December 21, 1868, and died at his home in Shyenue, North Dakota, on November 6, 1915. He graduated from the Baltimore Medical College in 1895, and began the practice of medicine at New Waterford, Ohio. He received his license for North Dakota in 1900, and located at Shyenue, where he remained till his death. He was a member of his

local society and the State Association, as well as a Fellow of the American Medical Association. He was president of the local telephone company, director in one of the village banks, and a member of many fraternal societies. He was much interested in civic and state affairs, and represented his district in the State Legislature for several terms. He took an active part in the proceedings, and was instrumental in having enacted many important laws bearing on the question of public health.

J. CLAYTON ALEXANDER

Dr. J. Clayton Alexander was born in Spring Valley, Ohio, on December 23, 1866, and died at Hope, North Dakota, on November 6, 1915. The end came while answering an urgent professional call. He graduated from Chicago Medical College, and was licensed to practice medicine in North Dakota in 1907. He located at Tower City, North Dakota, and six years later took over the practice of Dr. Harwood, of Hope. He was a member of his local society and the State Association, and a Fellow of the American Medical Association.

JAMES GRASSIK, M. D.,  
Committee on Necrology.

#### REPORT OF THE COMMITTEE ON MEDICAL DEFENSE

May 2nd, 1916.

To the North Dakota State Medical Association:

Gentlemen: We beg to report that since the last meeting of your Association the following matters have been handled by us:

The case of Gustaf Thorsen vs. Dr. Brenckle, of Kulm, which was pending at the time of our last report, has been settled and dismissed. Mr. Thorsen died, and the estate finally agreed to pay the doctor \$100 for his services, and dismiss all claims of malpractice. This was finally accepted, and the matter disposed of in this way.

The case of Philip Ott vs. Dr. Maercklein, of Dickinson, is still pending and undisposed of. The matter will probably be reached for trial some time this summer.

Since the last report Dr. W. B. Scott was sued by Clarence Young for malpractice in the reduction of a fracture of the forearm, claiming \$10,000 damages. E. R. Sinkler is attorney for the plaintiff. We took charge of his case for the Medical Society and put in an answer in October last. The case has not been noticed for trial, and is undisposed of.

Also since the last report Drs. Ewing & Ewing, of Kenmare, have been sued for malpractice in the treatment, or failure to treat, an eye, whereby an abscess formed and destroyed the sight. Dr. Fred Ewing is a member of the Association, but Dr. John Ewing is not. However, both doctors have insurance, and the insurance company is defending, so that the State Medical Association will not be put to any expense in the matter.

Thus far those are the only actions started since last report, and the ones heretofore mentioned are the only actions that are pending.

Respectfully yours,

BOSARD & TWIFORD,  
By R. H. Bosard.

A motion was made by Dr. H. H. Healy that new members taken in by the local societies can be prorated quarterly in the payment of fees to the State Association. The motion was carried.

The President appointed Drs. Benj. L. Meigs, C. J. McGurgen, and A. A. Whittemore a committee on nomination of officers.

Adjourned until 6 p. m.

#### FOURTH SESSION—WEDNESDAY, MAY 10TH

The House of Delegates convened as per adjournment, and was called to order by President V. H. Stickney. There were present Drs. McGurgen, Healy, Bristol, Carr, Zimmerman, Altnow, Meigs, Whittemore, Cosgrove, Hotchkiss, Crawford, Baldwin, Golseth, Green, Smyth, Drew, Campbell, Nicholson, and MacLachlan.

#### REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION

The Committee reported that it was their belief that it would be good policy not to ask for any legislation during the coming session of the legislature and believed that more would be accomplished in the line of Public Health if the women of the state or the laity should ask for a Public Health law. This report was adopted.

Adjourned until Thursday forenoon.

#### FIFTH SESSION—THURSDAY, MAY 11TH

The House of Delegates convened at 11 A. M., and was called to order by President Stickney. There were present Drs. MacLachlan, Nicholson, Campbell, Drew, Green, Smyth, Golseth, Baldwin, Cosgrove, Hotchkiss, Crawford, Meigs, Altnow, Zimmerman, Trainor, Bristol, Healy, McGurgen.

#### REPORT OF THE AUDITING COMMITTEE

The Councilors reported that they had examined the books of the treasurer and checked the vouchers drawn by the secretary, and had found they were correct.

The report was adopted. A communication was read from the North Dakota Nurses' Association, stating that there was a disposition to amend or nullify the law passed at the last meeting of the Legislature. It was moved by Dr. A. A. Whittemore that the State Association endorse the nurses' bill, and that the Association is not in favor of the repeal of the law now in force.



## REPORT OF THE COMMITTEE ON OFFICERS' REPORTS

The Committee on Officers' Reports has given careful consideration to the report of the Secretary and the annual address of the President of the Association. The suggestion of the Secretary concerning the appointment of a first-aid committee to co-operate with other states in the First Aid Conference was taken up by the Committee on Public Health. A resolution has been accepted by the House of Delegates from this committee, and the President of the Association will appoint such first-aid committee.

The annual report, based upon the untiring efforts of a most efficient secretary, is to be commended to the favorable consideration of the Association and entered in the minutes of the twenty-ninth annual meeting.

The address of our esteemed retiring President is to be commended as a masterful effort, both in thought and delivery. His suggestions for the making of a perfect human machine, the conservation of public health, and an active campaign against cancer are especially worthy of emphasis at this time.

L. D. BRISTOL,  
W. M. HOTCHKISS.  
C. J. MCGURREN.

The report was adopted.

## REPORT OF THE COMMITTEE ON NOMINATIONS

The nominating committee has the following report to make:

President—Victor J. LaRose, Bismarck.

First Vice-President—G. M. Williamson, Grand Forks.

Second Vice-President—Edgar A. Pray, Valley City.

Third Vice-President—W. A. Gerrish, Jamestown.

Secretary—H. J. Rowe, Casselton.

Treasurer—W. F. Sihler, Devils Lake.

Councilors: Devils Lake District, W. D.

Jones; Southern District, L. B. Green; Traill-Steele, James Grassick.

Delegate to the American Medical Association for one year vice C. S. Crane, deceased, Dr. Charles MacLachlan; Alternate, James P. Aylen; Medical Defense, H. H. Healy.

Physicians recommended to the Governor for appointment on the Board of Medical Examiners: Dr. G. M. Williamson, Grand Forks; G. J. McIntosh, Devils Lake; F. Peake, Jamestown.

On motion of Dr. L. B. Green, supported by Dr. Charles MacLachlan, the vote by which the vote on Public Policy and Legislation was adopted at a previous session was reconsidered. Dr. F. R. Smyth moved that it is the sense of the House of Delegates that we favor a full-time health officer, and that all honorable means be taken to secure that end. It was carried unanimously.

Fargo, Grand Forks, Williston, and New Rockford invited the Association to hold the next meeting at the respective places named.

On ballot, New Rockford was chosen as the place to hold the 1917 meeting.

The following committee was appointed by the President to revise the constitution: Drs F. R. Smyth, Charles MacLachlan, and the Secretary.

The proposed amendment to the by-laws submitted yesterday by Dr. Hotchkiss, changing the number constituting a quorum in the House of Delegates, from six to ten, was taken from the table, and passed unanimously.

Adjourned.

H. J. ROWE, M. D.,  
Secretary.

## DISTRICT AND COUNTY ROSTER

## CASS COUNTY MEDICAL SOCIETY

## PRESIDENT

Tronnes, N. . . . . Fargo

## SECRETARY

Hanna, J. F. . . . . Fargo

Aylen, J. P. . . . . Fargo

Bailey, Fred H. . . . . Fargo

Baldwin, W. P. . . . . Casselton

Bennett, C. E. . . . . Aneta

Burton, Paul H. . . . . Fargo

Busch, U. F. . . . . Fargo

Callander, C. N. . . . . Fargo

Carpenter, Geo. A. . . . . Fargo

Clark, Horace. . . . . Wheatland

Clark, S. B. . . . . Buffalo

Darrow, E. M. . . . . Fargo

Darrow, Kent E. . . . . Fargo

Fish, H. G. . . . . Fargo

Fjelde, H. O. . . . . Fargo

Gronwold, A. C. . . . . Fort Ransom

Gronwold, F. O. . . . . Fargo

James, J. B. . . . . Page

Kachelmacher, C. . . . . Fargo

Labbitt, L. H. . . . . Enderlin

MacGregor, Murdock. . . . . Fargo

Miller, H. W. . . . . Casselton

Morris, A. C. . . . . Fargo

Nelson, W. P. . . . . Knox

Nesse, S. A. . . . . Enderlin

Nichols, Arthur A. . . . . Fargo

Nichols, Wm. C. . . . . Fargo

Oftedal, Sverre. . . . . Fargo

Patterson, A. G. . . . . Lisbon

Patterson, T. C. . . . . Lisbon

Rindlaub, Elizabeth P. . . . . Fargo

Rindlaub, J. H. . . . . Fargo

Rindlaub, M. P. Jr. . . . . Fargo

Rowe, H. J. . . . . Casselton

Sand, S. O. . . . . Fargo

Skelsey, A. W. . . . . Fargo

Sorkness, Paul. . . . . Fargo

Weible, R. E. . . . . Fargo

## DEVILS LAKE DISTRICT MEDICAL SOCIETY

## PRESIDENT

McIntosh, G. J.....Devils Lake

## SECRETARY

G. F. Drew.....Devils Lake

Bussen, L. H.....Baker

Call, A. M.....Rugby

Carter, J. A.....Warwick

Claybough, W. R.....Wild Rose

Cuthbert, W. H.....Crary

Fawcett, W. C.....Starkweather

Floew, A. T.....Harvey

Hamilton, J. S.....Hansboro

Harris, F. C.....Cando

Heron, R. C.....Tolna

Horsman, A. T.....Devils Lake

Jones, W. D.....Devils Lake

Lamont, J. G.....Dunseith

Lemieux, D.....Dunseith

Lohrbauer, Ejner.....Lakota

Lund, A. B.....Leeds

McGurren, C. J.....Devils Lake

Moeller, Thor.....Perth

Peppard, T. A.....Devils Lake

Roberts, F. J.....Cando

Sihler, W. F.....Devils Lake

Smith, Clinton.....Devils Lake

Sorenson, A. R.....Rugby

Swenson, A. W.....Bisbee

Verrett, B. D.....Rolla

Vigland, J. C.....Brinsmade

Warren, J. W.....Leeds

Wicklund, C. A.....Churchs Ferry

Widmeyer, J. P.....Rolla

## GRAND FORKS DISTRICT MEDICAL SOCIETY

## PRESIDENT

French, H. E.....University

## SECRETARY

Woutat, H. G.....Grand Forks

Arneberg, J. G.....Grand Forks

Arneson, A. O.....McVile

Aylen, Chas. H.....Drayton

Beek, R. H.....Lakota

Bentzen, Olaf.....Grand Forks

Bratrud, A. S.....Grand Forks

Bristol, L. D.....University

Burrows, F. N.....Bathgate

Campbell, R. D.....Grand Forks

Countryman, J. E.....Grafton

Dean, Alfred.....Grand Forks

Deason, F. W.....St. Thomas

Eggers, Aug.....Grand Forks

Ekern, A.....Grand Forks

Emert, H. F.....Sarles

Engstad, J. E.....Minneapolis, Minn.

Friesen, H. J.....Grand Forks

Galbraith, J. E.....Cavalier

Gislason, G. J.....Grand Forks

Glaspel, G. W.....Grafton

Grassick, Jas.....Grand Forks

Harris, C. B.....Pembina

Healy, H. H.....Grand Forks

Irby, M. R.....Lankin

Irwin, S. H.....Grand Forks

James, H. J.....Bathgate

Johnson, John A.....Petersburg

Joistad, A. H.....Fairdale

Kammann, H. F.....Hannah

Landry, L. H.....Walhalla

Law, H. W. F.....Grand Forks

Lommen, C. E.....Fordville

McLean, R. M.....Gilby

McQueen, W. W.....Langdon

Marsden, C. S.....Grand Forks

Montgomery, John.....Ardoch

Mulligan, T.....Grand Forks

Nelson, A. S.....Adams

O'Keefe, Henry.....Grand Forks

Olson, Chresten.....St. Thomas

Peterson, O. T.....Northwood

Sandven, N. O.....Park River

Scott, W. W.....Walhalla

Smith, J. C.....Thompson

Suter, J. C.....Grafton

Taylor, J. D.....Grand Forks

Towey, J. W.....Langdon

Wagar, W. D.....Michigan

Waldren, H. M.....Drayton

Walker, J. J.....Cavalier

Weed, F. E.....Park River

Welch, W. H.....Larimore

Westeen, A. A.....Grand Forks

Wheeler, H. M.....Grand Forks

Williamson, G. M.....Grand Forks

Wilson, W. C.....Grand Forks

Witherstine, W. H.....Grand Forks

Wylie, A. R. T.....Grafton

## KOTANA MEDICAL SOCIETY

## PRESIDENT

Trainor, M. E.....Williston

## SECRETARY

MacManus, F. W.....Williston

Distad, O. E.....Williston

Hagan, E. J.....Williston

Jones, C. S.....Williston

Johnson, P. O. C.....Watford

Keats, Julia Jacobson.....Mandan

Norris, J. L.....Westby, Mont.

Skovholt, H. T.....Williston

Strong, T. J.....Williston

Wheelock, D. O.....Epping

## NORTHWESTERN DISTRICT MEDICAL SOCIETY

## PRESIDENT

Kermott, L. H.....Minot

## SECRETARY

Brugman, F. A.....Minot

Blatherwick, W. E.....Van Hook

Brigham, F. O.....Stanley

Campbell, R. W.....Deering

Carr, Andrew.....Minot

Christie, F. J.....Burlington

Collison, H. M.....Rugby

Coffin, G. H.....Drake

Craze, O. S.....Towner

Cramond, J. E.....Rugby

Critchfield, L. R.....Tolley

Darland, F. L.....Sawyer

Devine, J. L.....Minot

Durnin, Chas.....Westhope

Durnin, George A.....Westhope

Erenfeld, H. M.....Minot

Ewing, F.....Kenmare

Fisher, H. Z.....Lansford

Flath, Milford G.....Stanley

Frogner, G. S.....Berthold

Grangaard, H. O.....Douglas

Hallderon, M. B.....Souris

Hillis, S. J.....Berthold

Johns, S. M.....Velva

Johnson, J. A.....Bottineau

Kerner, C. A.....Upham

Knapp, H. G.....Minot

Knudson, K. O.....Glenburn

Kolb, F. K.....Granville

Lancaster, Blake.....Crosby

Lyman, F. V.....Wild Rose

McLean, N. B.....Kenmare

McCannel, A. J.....Minot

McCannel, Archie D.....Minot

Moreland, J. W.....Maxbass

Myklestad, Nils.....Minot

Nestos, P. A.....Minot

Newlove, J. T.....Minot

Nicholson, A. S.....Max

Nugent, O. B.....Harvey

Overgard, S.....Minot

Paulson, A. J.....Grand Forks

Pence, J. R.....Minot

Pierson, C. M.....Ambrose

Plourde, W. A.....Overly

Ransom, E. M.....Minot

Ray, R. H.....Garrison

Ringo, G. Roy.....Minot

Rogers, Joseph.....Alexander

Semple, James.....Minot

Somers, A. J. .... Portal  
 Steeves, E. O. .... Rugby  
 Stone, E. C. .... Balfour

Van de Erve, Hubert...Sherwood  
 Van de Erve, Walter...Sherwood  
 Weible, E. B. .... Berthold  
 Wheelon, F. E. .... Minot

Wiig, I. C. J. .... Wahpeton  
 Yeomans, T. N. .... Minot  
 Youtz, H. LaMont...Willow City

## RICHLAND COUNTY MEDICAL SOCIETY

**PRESIDENT**  
 Devine, Robt. H. .... Wahpeton

**SECRETARY**  
 O'Brien, T. .... Wahpeton  
 Bean, O. G. .... Walcott

Christensen, W. .... Lidgerwood  
 Dahleen, H. E. .... Hankinson  
 Durkee, C. A. .... Dwight  
 Greenman, N. H. .... Abercrombie  
 Ivers, M. U. .... Abercrombie

Maertz, W. F. .... Lidgerwood  
 Ryan, D. E. .... Hankinson  
 Sasse, E. G. .... Lidgerwood  
 Shields, N. J. .... Wahpeton  
 Steele, D. C. .... Fairmount  
 Wilder, K. W. .... Wyndmere

## SHEYENNE VALLEY MEDICAL SOCIETY

**PRESIDENT**  
 Benson, R. D. .... Hannaford

**SECRETARY**  
 Zimmerman, S. A. .... Valley City

Almklov, Lief. .... Cooperstown  
 Aylen, W. C. .... Litchville  
 Brimi, C. L. .... Cooperstown  
 Caldwell, T. J. .... Wimbledon

Crary, G. H. .... Fingal  
 Crosby, E. B. .... Oriska  
 Hunt, C. E. .... Valley City  
 Kellog, P. M. .... Rogers  
 Lang, A. A. J. .... Sanborn  
 LeBien, E. A. .... McHenry  
 Macdonald, A. C. .... Fingal  
 Macdonald, A. W. .... Valley City  
 Nolte, W. C. .... Dazey

Platou, L. S. .... Valley City  
 Pray, E. A. .... Valley City  
 Spicer, C. E. .... Valley City  
 Stixrud, T. M. .... Litchville  
 Truscott, J. R. .... Binford  
 VanHouten, J. .... Valley City  
 Wanner, W. B. .... Wimbledon  
 Westley, M. D. .... Cooperstown  
 Wicks, F. L. .... Valley City

## SIXTH DISTRICT MEDICAL SOCIETY

**PRESIDENT**  
 Mathews, G. A. .... Napoleon

**SECRETARY**  
 Bodenstab, W. H. .... Bismarck

Altnow, H. O. .... Mandan  
 Arnson, J. O. .... Bismarck  
 Benson, O. T. .... Glen Ullin  
 Brandt, A. M. .... Bismarck  
 Bunting, F. E. .... Mandan  
 Cain, W. T. .... Underwood  
 Eastman, L. G. .... Hazen  
 Fisher, A. M. .... Bismarck

Gaebe, O. C. .... New Salem  
 Griebenow, F. F. .... Bismarck  
 Kranz, M. .... Mandan  
 LaRose, V. J. .... Bismarck  
 Lodge, F. B. .... Steele  
 MacLachlan, T. M. .... Bismarck  
 Mella, Hugo .... Bismarck  
 Nickerson, B. S. .... Mandan  
 Pryse, T. S. .... Dawson  
 Quain, E. P. .... Bismarck  
 Quain, F. D. .... Bismarck  
 Ramstad, N. O. .... Bismarck

Rasmussen, Fred .... Center  
 Rice, P. F. .... Hekton  
 Roan, M. W. .... Bismarck  
 Schipfer, L. A. .... Bismarck  
 Smith, C. C. .... Stanton  
 Smyth, F. R. .... Bismarck  
 Spielman, G. H. .... Flasher  
 Stackhouse, C. E. .... Bismarck  
 Strauss, F. B. .... Bismarck  
 Stucke, E. C. .... Garrison  
 Thelen, W. P. .... Wilton  
 Thompson, R. C. .... Wilton  
 Wolverson, W. C. .... Linton

## SOUTHERN DISTRICT MEDICAL SOCIETY

**PRESIDENT**  
 Brunkle, J. F. .... Kulm

**SECRETARY**  
 Meigs, Benj. L. .... Edgeley  
 Brastad, J. P. .... Oakes

Emanuel, H. W. .... Milnor  
 Grant, Geo. .... Wishek  
 Greene, L. B. .... Edgeley  
 Gundermann, H. R. .... Monango  
 Hillis, A. E. .... LaMoure  
 Maercklein, C. J. .... Gackle

Maercklein, F. W. .... Oakes  
 Meyers, L. W. .... Marion  
 Munier, H. J. .... Oakes  
 Ribble, Geo. B. .... LaMoure  
 Sturgeon, F. H. .... Kulm

## SOUTHWESTERN DISTRICT MEDICAL SOCIETY

**PRESIDENT**  
 Murray, K. M. .... Scranton

**SECRETARY**  
 Whittemore, A. A. .... Bowman

Bordwell, F. A. .... Marmarth  
 Dach, J. L. .... Reeder  
 Ewbank, J. Nelson. .... Rhame  
 Hill, Simon W. .... Regent  
 Mizener, Mark. .... Bowman

Sarchet, G. A. .... New England  
 Schneider, J. E. .... Bowman  
 Stribling, J. W. .... Amidon  
 Voss, Carl. .... Hettinger

## STARK COUNTY MEDICAL SOCIETY

**PRESIDENT**  
 Long, W. H. .... Dickinson

**SECRETARY**  
 Maercklein, O. C. .... Dickinson

Bowen, J. W. .... Dickinson  
 Brandies, H. A. .... Hebron

Chernaused, Sam. .... Dickinson  
 Cosgrove, J. H. .... Belfield  
 Crosette, G. D. .... Richardton  
 Davis, H. A. .... Dickinson  
 Jameson, A. J. .... Sentinel Butte  
 McNab, A. B. .... Beach  
 Museus, H. B. .... Beach  
 Nachtwey, A. P. .... Dickinson

Neff, Elizabeth A. .... Emerson  
 Perkins, George A. .... Dickinson  
 Schierbaum, A. F. E. .... Hebron  
 Smith, Oscar M. .... Killdeer  
 Spear, A. E. .... Belfield  
 Stickney, Victor H. .... Dickinson  
 Weyrens, Joseph P. .... Taylor



## STUTSMAN COUNTY MEDICAL SOCIETY

## PRESIDENT

Earl, H. D.....Jamestown

## SECRETARY

Golseth, G. ....Jamestown  
 Arzt, P. G.....Jamestown  
 Culbert, M. H.....Jamestown

De Puy, R. G.....Jamestown  
 De Puy, Thos. L.....Jamestown  
 Gerrish, W. A.....Jamestown  
 Guest, A. W.....Jamestown  
 Hotchkiss, W. M.....Jamestown  
 Jamieson, G. V.....Jamestown  
 Longstreth, W. E. J.....Kensal

Martin, T. P.....Streeter  
 Melzer, S. W.....Woodworth  
 Movius, A. H.....Jamestown  
 Smith, LeRoy G.....Medina  
 Wink, Helen K.....Jamestown  
 Wood, W. W.....Jamestown

## TRAILL-STEELE MEDICAL SOCIETY

## PRESIDENT

Abbott, John C.....Hope

## SECRETARY

Vinje, Syver .....Hillsboro

Fortun, O. J.....Mayville  
 Haagenen, E. C.....Hillsboro  
 Heimark, A. J.....Finley  
 Kjelland, A. A.....Hatton  
 Knutson, O. A.....Buxton

Robinson, C. O.....Mayville  
 Savre, M. T. ....Northwood  
 Wadel, K. A.....Portland  
 White, W. E.....Mayville

## TRI-COUNTY MEDICAL SOCIETY

## PRESIDENT

Crawford, John...New Rockford

## SECRETARY

Watson, Earl M...New Rockford

Brown, Fred.....McClusky

Clark, I. D.....Harvey  
 Clay, A. J.....Bowden  
 Donker, A. E.....Sykeston  
 Goss, E. L.....Carrington  
 Heinzeroth, G. E....Turtle Lake

MacKenzie, J. Ross...Carrington  
 MacKenzie, J. Roy...New Rockford  
 MacLachlan, Chas...New Rockford  
 McClusky, O. W....Carrington  
 Moore, W. H.....Harvey  
 Vallency, J. H.....Fessenden

## ALPHABETICAL ROSTER

Abbott, John C.....Hope  
 Almklov, Lief.....Cooperstown  
 Altnow, H. O.....Mandan  
 Arneberg, J. G.....Grand Forks  
 Arneson, A. O.....McVile  
 Arnsen, J. O.....Bismarck  
 Arzt, P. G.....Jamestown  
 Aylen, Chas. H.....Drayton  
 Aylen, J. P.....Fargo  
 Aylen, W. C.....Litchville  
 Bailey, Fred H.....Fargo  
 Baldwin, W. P.....Casseltown  
 Bean, O. G.....Walcott  
 Beek, R. H.....Lakota  
 Bennett, C. E.....Aneta  
 Benson, R. D.....Hannaford  
 Benson, O. T.....Glen Ullin  
 Bentzen, Olaf.....Grand Forks  
 Blatherwick, W. E....Van Hook  
 Bodestab, W. H.....Bismarck  
 Bordwell, F. A.....Marmarth  
 Bowen, J. W.....Dickinson  
 Brandies, H. A.....Hebron  
 Brandt, A. M.....Bismarck  
 Brastad, J. P.....Oakes  
 Bratrud, A. S.....Grand Forks  
 Brenkle, J. F.....Kulm  
 Brigham, F. O.....Stanley  
 Brimi, C. L.....Cooperstown  
 Bristol, L. D.....University  
 Brown, Fred.....McClusky  
 Brugman, F. A.....Minot  
 Bunting, F. E.....Mandan  
 Burrows, F. N.....Bathgate  
 Burton, P. H.....Fargo  
 Busch, U. F.....Fargo  
 Bussen, L. H.....Baker

Cain, W. T.....Underwood  
 Caldwell, T. J.....Wimbledon  
 Campbell, R. W.....Deering  
 Call, A. M.....Rugby  
 Callander, C. N.....Fargo  
 Campbell, R. D.....Grand Forks  
 Carpenter, Geo. A.....Fargo  
 Carr, Andrew.....Minot  
 Carter, J. A.....Warwick  
 Chernauek, Sam.....Dickinson  
 Christensen, W. ....Lidgerwood  
 Christie, F. J.....Burlington  
 Clark, Horace.....Wheatland  
 Clark, I. D.....Harvey  
 Clark, S. B.....Buffalo  
 Clay, A. J.....Bowden  
 Claybough, W. R.....Wild Rose  
 Coffin, G. H.....Drake  
 Collison, H. M. ....Rugby  
 Cosgrove, J. H.....Belfield  
 Countryman, J. E.....Grafton  
 Craise, O. S.....Towner  
 Cramond, J. E.....Rugby  
 Crary, G. H.....Fingal  
 Crawford, John...New Rockford  
 Critchfield, L. R.....Tolley  
 Crosby, E. B.....Oriska  
 Crossette, G. D.....Richardton  
 Culbert, M. H.....Jamestown  
 Cuthbert, W. H.....Crary  
 Dach, J. L.....Reeder  
 Dahleen, H. E.....Hankinson  
 Darland, F. L.....Sawyer  
 Darrow, Kent E.....Fargo  
 Darrow, E. M.....Fargo  
 Davis, H. A.....Dickinson  
 Dean, Alfred.....Grand Forks  
 Deason, F. W.....St. Thomas

De Puy, R. G.....Jamestown  
 De Puy, Thos. L.....Jamestown  
 Devine, J. L.....Minot  
 Devine, R. H.....Wahpeton  
 Distad, O. E.....Williston  
 Donker, A. E.....Sykeston  
 Drew, G. F.....Devils Lake  
 Durkee, C. A.....Dwight  
 Durnin, Chas.....Westhope  
 Durnin, George A...Westhope  
 Earl, H. D.....Jamestown  
 Eastman, L. G.....Hazen  
 Eggers, Aug.....Grand Forks  
 Ekern, A.....Grand Forks  
 Emanuel, H. W.....Milnor  
 Emert, H. F.....Sarles  
 Engstad, J. E. ....Minneapolis, Minn.  
 Erenfeld, H. M.....Minot  
 Ewbank, J. Nelson.....Rhame  
 Ewing, F.....Kenmare  
 Fawcett, W. C.....Starkweather  
 Fish, H. G.....Fargo  
 Fisher, A. M.....Bismarck  
 Fisher, H. Z.....Lansford  
 Fielde, H. O.....Fargo  
 Flath, Milford G.....Stanley  
 Floew, A. T.....Harvey  
 Fortun, O. J.....Mayville  
 French, H. E.....University  
 Friesen, H. J.....Grand Forks  
 Frogner, G. S.....Berthold  
 Gaebe, O. C.....New Salem  
 Galbraith, J. E.....Cavalier  
 Gerrish, W. A.....Jamestown  
 Gislason, G. J.....Grand Forks  
 Gaspel, G. W.....Grafton  
 Golseth, G. ....Jamestown  
 Goss, E. L.....Carrington

Grangaard, H. O.....Douglas  
 Grant, Geo.....Wishek  
 Grassick, Jas.....Grand Forks  
 Greene, L. B.....Edgeley  
 Greenman, N. H.....Abercrombie  
 Griebenow, F. F.....Bismarck  
 Gronvold, F. O.....Fargo  
 Gronwold, A. C.....Fort Ransom  
 Guest, A. W.....Jamestown  
 Gundermann, H. R.....Monango  
 Haagensen, E. C.....Hillsboro  
 Hagan, E. J.....Williston  
 Halldorson, M. B.....Souris  
 Hamilton, J. S.....Hansboro  
 Hanna, J. F.....Fargo  
 Harris, C. B.....Pembina  
 Harris, F. C.....Cando  
 Healy, H. H.....Grand Forks  
 Heimark, A. J.....Finley  
 Heinzeroth, G. E.....Turtle Lake  
 Heron, R. C.....Tolna  
 Hill, Simon W.....Regent  
 Hillis, A. E.....LaMoure  
 Hillis, S. J.....Berthold  
 Horsman, A. T.....Devils Lake  
 Hotchkiss, W. M.....Jamestown  
 Hunt, C. E.....Valley City  
 Irby, M. R.....Lankin  
 Irwin, S. H.....Grand Forks  
 Ivers, M. U.....Abercrombie  
 James, J. B.....Page  
 James, H. J.....Bathgate  
 Jameson, A. J.....Sentinel Butte  
 Jamieson, G. V.....Jamestown  
 Janus, S. M.....Velva  
 Johnson, J. A.....Bottineau  
 Johnson, John A.....Petersburg  
 Johnson, P. O. C.....Watford  
 Joistad, A. H.....Fairdale  
 Jones, C. S.....Williston  
 Jones, W. D.....Devils Lake  
 Kachelmacher, C.....Fargo  
 Kammann, H. F.....Hannah  
 Keats, Julia Jacobson...Mandan  
 Kellog, P. M.....Rogers  
 Kernott, L. H.....Minot  
 Kerner, C. A.....Upham  
 Kjelland, A. A.....Hatton  
 Knapp, H. G.....Minot  
 Knudson, K. O.....Glenburn  
 Knutson, O. A.....Buxton  
 Kolb, F. K.....Granville  
 Kranz, M.....Mandan  
 Labbitt, L. H.....Enderlin  
 Lamont, J. G.....Dunseith  
 Lancaster, Blake.....Crosby  
 Landry, L. H.....Walhal'a  
 Lang, A. A. J.....Sanborn  
 LaRose, V. J.....Bismarck  
 Law, H. W. F.....Grand Forks  
 LeBien, E. A.....McHenry  
 Lemieux, D.....Dunseith  
 Lodge, F. B.....Steele  
 Lohrbauer, Ejner.....Lakota  
 Lommen, C. E.....Fordville  
 Long, W. H.....Dickinson  
 Longstreth, W. E. J.....Kensal

Lund, A. B.....Leeds  
 Lyman, F. V.....Wild Rose  
 Macdonald, A. C.....Fingal  
 Macdonald, A. W.....Valley City  
 MacGregor, Murdock.....Fargo  
 MacKenzie, J. Ross..Carrington  
 MacKenzie, J. Roy..New Rockford  
 MacLachlan, Chas..New Rockford  
 MacLachlan, T. M.....Bismarck  
 MacManus, F. W.....Williston  
 McCannel, A. J.....Minot  
 McCannel, Archie D.....Minot  
 McClusky, O. W.....Carrington  
 McGurran, C. J.....Devils Lake  
 McIntosh, G. J.....Devils Lake  
 McLean, N. B.....Kenmare  
 McLean, R. M.....Gilby  
 McNab, A. B.....Beach  
 McQueen, W. W.....Langdon  
 Maercklein, C. J.....Gackle  
 Maercklein, F. W.....Oakes  
 Maercklein, O. C.....Dickinson  
 Maertz, W. F.....Lidgerwood  
 Marsden, C. S.....Grand Forks  
 Martin, T. P.....Streeter  
 Mathews, G. A.....Napoleon  
 Meigs, Benj. L.....Edgeley  
 Mella, Hugo.....Bismarck  
 Melzer, S. W.....Woodworth  
 Meyers, L. W.....Marion  
 Miller, H. W.....Casselton  
 Mizener, Mark.....Bowman  
 Moeller, Thor.....Perth  
 Montgomery, John.....Ardoch  
 Moore, W. H.....Harvey  
 Moreland, J. W.....Maxbass  
 Morris, A. C.....Fargo  
 Movius, A. H.....Jamestown  
 Mulligan, T.....Grand Forks  
 Munier, H. J.....Oakes  
 Murray, K. M.....Scranton  
 Museus, H. B.....Beach  
 Myklestad, Nils.....Minot  
 Nachtwey, A. P.....Dickinson  
 Neff, Elizabeth A.....Emerson  
 Nelson, A. S.....Adams  
 Nelson, W. P.....Knox  
 Nesse, S. A.....Enderlin  
 Nestos, P. A.....Minot  
 Newlove, J. T.....Minot  
 Nickerson, B. S.....Mandan  
 Nichols, Arthur A.....Fargo  
 Nichols, Wm. C.....Fargo  
 Nicholson, A. S.....Max  
 Nolte, W. C.....Dazey  
 Norris, J. L.....Westby, Mont.  
 Nugent, O. B.....Harvey  
 O'Brien, T.....Wahpeton  
 O'Keefe, Henry.....Grand Forks  
 Oftedal, Sverre.....Fargo  
 Olson, Chresten.....St. Thomas  
 Overgard, S.....Minot  
 Patterson, A. G.....Lisbon  
 Patterson, T. C.....Lisbon  
 Paulson, A. J.....Grand Forks  
 Peppard, T. A.....Devils Lake

Pence, J. R.....Minot  
 Perkins, Geo. A.....Dickinson  
 Peterson, O. T.....Northwood  
 Pierson, C. M.....Ambrose  
 Platou, L. S.....Valley City  
 Plourde, W. A.....Overly  
 Pray, E. A.....Valley City  
 Pryse, T. S.....Dawson  
 Quain, E. P.....Bismarck  
 Quain, F. D.....Bismarck  
 Ramstad, N. O.....Bismarck  
 Ransom, E. M.....Minot  
 Rasmussen, Fred.....Center  
 Ray, R. H.....Garrison  
 Ribble, George B.....La Moure  
 Rice, P. F.....Hekton  
 Rindlaub, Elizabeth P.....Fargo  
 Rindlaub, John H.....Fargo  
 Rindlaub, Martin P., Jr...Fargo  
 Ringo, G. Roy.....Minot  
 Roan, M. W.....Bismarck  
 Roberts, F. J.....Cando  
 Robinson, C. O.....Mayville  
 Rogers, Joseph.....Alexander  
 Rowe, H. J.....Casselton  
 Ryan, D. E.....Hankinson  
 Sand, S. O.....Fargo  
 Sandven, N. O.....Park River  
 Sarchet, G. A.....New England  
 Sasse, E. G.....Lidgerwood  
 Savre, M. T.....Northwood  
 Schierbaum, A. F. E.....Hebron  
 Schipfer, L. A.....Bismarck  
 Schneider, J. E.....Bowman  
 Scott, W. W.....Walhalla  
 Semple, James.....Minot  
 Shields, N. J.....Wahpeton  
 Sihler, W. F.....Devils Lake  
 Skelsey, A. W.....Fargo  
 Skovholt, H. T.....Williston  
 Smith, C. C.....Stanton  
 Smith, Clinton.....Devils Lake  
 Smith, J. C.....Thompson  
 Smith, LeRoy G.....Medina  
 Smith, Oscar M.....Killdeer  
 Smyth, F. R.....Bismarck  
 Somers, A. J.....Portal  
 Sorenson, A. R.....Rugby  
 Sorkness, Paul.....Fargo  
 Spear, A. E.....Belfield  
 Spicer, C. E.....Valley City  
 Spielman, G. H.....Flasher  
 Stackhouse, C. E.....Bismarck  
 Steele, D. C.....Fairmount  
 Steeves, E. O.....Rugby  
 Stickney, V. H.....Dickinson  
 Stixrud, T. M.....Litchville  
 Stone, E. C.....Balfour  
 Strauss, F. B.....Bismarck  
 Stribling, J. W.....Amidon  
 Strong, T. J.....Williston  
 Stucke, E. C.....Garrison  
 Sturgeon, F. H.....Kulm  
 Suter, J. C.....Grafton  
 Swenson, A. W.....Bisbee  
 Taylor, J. D.....Grand Forks  
 Thelen, W. P.....Wilton

Thompson, R. C.....Wilton  
 Towey, J. W.....Langdon  
 Trainor, M. E.....Williston  
 Tronnes, N. ....Fargo  
 Truscott, J. R.....Binford  
 Vallencey, J. H.....Fessenden  
 Van de Erve, Hubert..Sherwood  
 Van de Erve, Walter...Sherwood  
 Van Houten, J.....Valley City  
 Verrett, B. D.....Rolla  
 Vigland, J. C.....Brinsmade  
 Vinje, Syver .....Hillsboro  
 Voss, Carl.....Hettinger  
 Wadel, K. A.....Portland  
 Wagar, W. D.....Michigan  
 Waldren, H. M.....Drayton

Walker, J. J.....Cavalier  
 Wanner, W. B.....Wimbleton  
 Warren, J. W.....Leeds  
 Watson, Earl M....New Rockford  
 Weed, F. E.....Park River  
 Weible, R. E.....Fargo  
 Weible, E. B.....Berthold  
 Welch, W. H.....Larimore  
 Westeen, A. A.....Grand Forks  
 Westley, M. D.....Cooperstown  
 Weyrens, J. P.....Taylor  
 Wheeler, H. M....Grand Forks  
 Wheelock, D. O.....Epping  
 Wheelon, F. E.....Minot  
 White, W. E.....Mayville  
 Whittemore, Arthur A..Bowman

Wicklund, C. A....Churchs Ferry  
 Wicks, F. L.....Valley City  
 Widmeyer, J. P.....Rolla  
 Wiig, I. C. J.....Wahpeton  
 Wilder, K. W.....Wyndmere  
 Williamson, Geo. M.Grand Forks  
 Wilson, W. C.....Grand Forks  
 Wink, Helen K....Jamestown  
 Witherstine, W. H..Grand Forks  
 Wolverton, W. C.....Linton  
 Wood, W. W.....Jamestown  
 Woutat, H. G.....Grand Forks  
 Wylie, A. R. T.....Grafton  
 Yeomans, T. N.....Minot  
 Youtz, H. LaMont...Willow City  
 Zimmerman, S. A....Valley City

## PRESIDENT'S ADDRESS

BY VICTOR H. STICKNEY, M. D.  
 DICKINSON, NORTH DAKOTA

With the passing of another year, we are met here this morning to open again the annual meeting of the State Medical Association, and to deliberate upon some of the questions that concern our communal life to the end that through the exchange of ideas and the comparison of our experiences we may have a clearer knowledge of our duties to each other, a better understanding of our obligations to the communities in which we live, and a keener desire to more fully equip ourselves for the service of healing the sick.

It becomes more and more apparent as the years go by that the attitude of the laity towards the medical man is slowly shifting. The doctor is gradually losing his grip on the public mind as an oracle of mystic understanding and imposing lore, enveloped in armor of poise and dignity and benign wisdom. He is being asked in these inquiring times to come out of his shell, and show to the world the quality of the stuff kinked up under the roots of his hair, and to share a becoming measure of the attainments he has with the common clay that so closely touches his social life.

"A man is the part he plays among his fellow men." No man of any calling can live to himself alone. He is indebted to his environment for all he is, and must pay if he would get the most out of life.

Let us not for a single moment lose sight of the fact that ours is a calling the object of which is to make mankind strong and well, and that all measures by which this object is attained are

commendable, and should meet with our hearty approval.

Enormous salaries are paid by the great industries of the world to mechanical engineers, not because of their ability to repair broken machinery, but because they may perfect a machine that will stand the test of service without breaking. So the demand is going to be made of us, more and more as the years go by, that we measure ourselves up to a higher standard of efficiency, not only as healers of the sick, but also, and above this, in staying the process of sickness itself. The demand of the times is that we enlist ourselves in the service of public education for the physical betterment of the human race, and that we teach the individual how to make life longer, happier, more healthful, and more efficient. Men grow by having burdens laid upon them. This added responsibility will go far to advance the physician's worth to the community in which he lives.

During the past twenty years more has been done than ever before to conserve human life by teaching disease-prevention. Its telling work may be noted by the decreasing mortality-rate in practically all the communicable diseases. And still, and notwithstanding all our efforts in this particular field of life-conservation work, the ground has been but feebly touched. A woeful amount of ignorance still remains in the world as to the more common forms of protecting the body from disease. The potent forces for correcting this condition still remain entrenched in mass teaching. The work must go forward with renewed effort if we may hope for a bet-



terment of existing conditions. Its necessity need not be far sought in face of the fact that upwards of a million people die in this country every year from conditions that need not have existed. A hundred and fifty thousand die of tuberculosis, a disease that no less an authority than Pasteur said could be removed from the face of the earth. Seventy-five thousand die of pneumonia, a disease that reaps its frightful harvest largely from weakened organs within the body that have been made weak by carelessness or neglect or some form of excess. Twenty-five thousand die each year of typhoid fever, a disease that should not exist at all, and that it does exist is a travesty on the intelligence of the people of the community in which it appears.

All this waste of life, together with the deaths that come from venereal disease,—syphilis, which, irrespective of race or age or social standing, is sapping the life of American manhood and womanhood. To this is added an enormous death-rate in infancy and early childhood, from faulty feeding and careless surroundings, which amounts to twenty per cent of all the children born into the world before they reach the age of five. And we have not mentioned yet the rapidly increasing death-rate from organic diseases that demand such an appalling sacrifice of humanity after the high noon of life is reached. This enormous life-waste is due to the fact that we are a nation of heedless, untaught, intemperate, kidney-blocked, fast-pacing humanity, who break down early from high business-pressure and a low order of common sense regarding the laws of the mechanics and functions of the human body. Scan the mortality reports, and note how deaths from cancer go up by leaps and bounds after the age of forty, from which time on one out of every eight who meet death from all causes die of this torturing, loathsome disease. My plea to you is that you teach the men and the women of the communities in which you live that early recognition and prompt, radical treatment, when the tissue blemish is in a pre-cancerous stage, furnish the only means yet known of staying the ravages of this woeful disease.

All these deaths, totaling a sum of close to a

million people who die in the United States every year, are from preventable causes, all of which need not have been had the knowledge that we possess concerning disease-prevention been rigidly applied.

So the cry comes to us, as the class best fitted by the knowledge we possess and the places we hold in the communities in which we live, that we press forward this humanitarian work in behalf of a benighted world. The field is an open one, and the glaring necessity for its advancement meets us on every hand. There has been a point in the life of every bruised and broken business man in the communities in which you live when a touch of your understanding might have saved much sorrow and kept for the world a life of valuable service. Teach the people among whom you walk and who look to you for light some of the common truths you know which so intimately concern their hampered lives. Teach them that in the gospel of health every disease is an unnatural condition with a broken law behind it somewhere. Elbert Hubbard said it is more a disgrace to be sick than to be in jail; for, if you are in jail, it is only because you have broken some law made by man, but, if you are sick, it is because you have broken some law made by God. Now, barring those ills we have that our ancestors are accountable for, this saying bears the ear-mark of an axiom.

Then there are sanitary measures to be instituted, maintained, and supervised in every hamlet in the land. Instruct your brothers, whose keepers you are, in the righteous knowledge of sex hygiene, household sanitation, and right living. Work in conjunction with the local health-officers and give them your hearty support. See to it that your birth- and death-reports are accurately made, and that they reach the proper destination for compilation, and endeavor to place the state in the registration area where it belongs. If you do all these things you will be only doing your plain duty as citizens and Christian gentlemen; and you will be following hard and fast in the footprints of Him who walked the earth nearly two thousand years ago, who went about doing good, healing the sick, making the blind to see, the lame to walk.

# PERFORATING GASTRIC ULCER FOLLOWING GASTRO-ENTEROSTOMY\*

By ARTHUR N. COLLINS, A.B., M.D., F.A.C.S.

DULUTH, MINNESOTA

Simple gastro-enterostomy is not proved a magic medicine to mend man, for complicating factors are prone to intervene and stay good intentions or pervert cherished hopes of well-meaning surgeons. Sober experience, therefore, has taught the wisdom of narrowing down the field for this operative procedure.

When gastro-enterostomy was introduced the engrossing discussions among surgeons were upon such questions as what to feed after the operation, how soon to feed it, how soon following operation should the patient sit up, how soon out of bed, and the like. These points having been averaged up after a considerable experience with the method are now reasonably well settled and have given place to the engrossing discussions of today. These last bristle with such absorbing questions as how to treat the pylorus at the time of gastro-enterostomy, whether to close this natural exit or not to close it, and, equally bewildering, how best to combat ileus, gastric tetany, post-operative vomiting, regurgitation of bile into the stomach, excessive acidity, peptic ulcers of the stomach or jejunum, and, what constitutes the subject matter of this paper, post-operative perforation of the stomach.

## CASE

Miss O., aged 28; Swedish-American; laundress. The patient presented herself July 30, 1913. She stated that her appendix was removed in February, 1913, in a distant city, and that this was followed one week later by excision of a gastric ulcer while she was still in the hospital. A three weeks' rest cure for what was called a "bleeding ulcer" had preceded the above operations. She dated the onset of her trouble back to June, 1912. At this time she was troubled with vomiting, excessive saliva, and loss of weight. The vomiting began independent of food-taking; water would provoke it. The stomach contents were sour; no particular pain and no hematemesis; not constipated. The appendectomy was followed by drainage. A communication from the surgeon says: "I excised a large ulcerated indurated area, with perforation on anterior surface of the stomach, near pylorus." He does not state whether he performed gastro-enterostomy. Convalescence protracted, but gradual gain of weight to 127 lbs.

Present History. Consulted Dr. Tuohy on July 30, 1913. Complained of stomach distress, lasting two or three months. No pain, no food vomiting, but occasionally a rush of watery fluid into the mouth. She complained of considerable backache, which she at-

tributed to a long walk recently taken. Bismuth x-ray showed good position of stomach and intestines. Stomach empty in four hours. No evidence of bismuth passing through a possible gastro-enterostomy opening.

August 12, 1913. Feeling quite well. Lost much of her distress and anxiety. Eating in fair amounts. Still complaining, however, of the saliva in excess.

September 27, 1913. Feeling much better. Appetite fine.

May 11, 1914. Feeling very poorly. For a few weeks cramps in the bowels, and passing voluminous whitish stools, which seem upon examination to resemble fatty stool. A chronic pancreatitis was here considered in the diagnosis.

May 16. Pasty, light stools.

June 28. Recurrence of above symptoms, with like stools and diarrhea. Looks ill, and general appearance bad. X-ray plate shows striking deformity at the pyloric end of the stomach.

July 15. Since the above she developed a marked pyloric obstruction, as evidenced by x-ray plates and food-retention. She was sent to the hospital.

I found her a tall, slender young woman, very much emaciated, and with a pronounced pigmentation of the skin of the face, simulating a chloasma; noticeably sensitive in the epigastrium, in the midline, tending towards the left. She complained bitterly of an obstinate diarrhea. The stools were very pale. For a week preceding she had taken a fairly liberal diet, and with much less distress, but vomited, however, in large quantity, showing evidence of considerable food-retention. Temperature and pulse were practically normal. Urine was given off in normal quantity and was negative.

July 25, 1914. Exploration at St. Mary's Hospital. Upon examining the stomach it was found to contain a pyloric tumor about one and one-half or two inches in diameter, which was regarded as an indurated ulcer. A posterior gastro-enterostomy was done, using absorbable material for the inner suture and fine silk for the outer. The gall-bladder, pancreas, kidneys—all apparently negative. From this operation she recovered without notable event and left the hospital August 6, "improved."

On August 10 she was seen at the office, and reported herself as feeling very weak. Pigmentation in the face was quite marked. Her weight was 100 lbs., as compared with 109 lbs. six weeks before the operation.

August 22. Vomited considerably; feeling poorly.

August 26. Weight, 93 lbs., having lost 7 lbs. since operation. Pigmentation more marked. Weak, appetite poor, and she seemed persistently failing. The stools continued to be light yellow and diarrhetic. Hemoglobin, 95 per cent on that day. Urine, negative.

September 15. Her nurse telephoned that the patient, during the last two or three days, had vomited material with a foul odor, as though of feces. When I saw her at her home on this date it was evident she would die (a conclusion rapidly borne out by fact). Permission was granted for a limited post-mortem examination.

At autopsy, on opening the abdomen, a perforation,

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.



apparently very recent, in the anterior part of the pyloric antrum of the stomach, presented; and a small fecal mass, the size of a navy bean, was just issuing therefrom. There was no demonstrable peritoneal reaction. The pyloric portion of the stomach was adherent to the edge of the liver. The latter was enlarged over to the left, the left lobe extending to the splenic region. Separating the adhesions and dissecting posteriorly, another perforation was discovered on the posterior aspect of the stomach, communicating with a loop of the transverse colon. The stoma of the gastro-enterostomy was patent, and apparently in excellent condition. There were no adhesions here except such as normally immediately surround the anastomosis. There were numerous adhesions about the gastrocolonic perforation, fecal contents in the stomach, and an infantile uterus. No further abdominal lesions were discovered.

With the termination of the above experience, it was my belief that this, or a kindred chain of

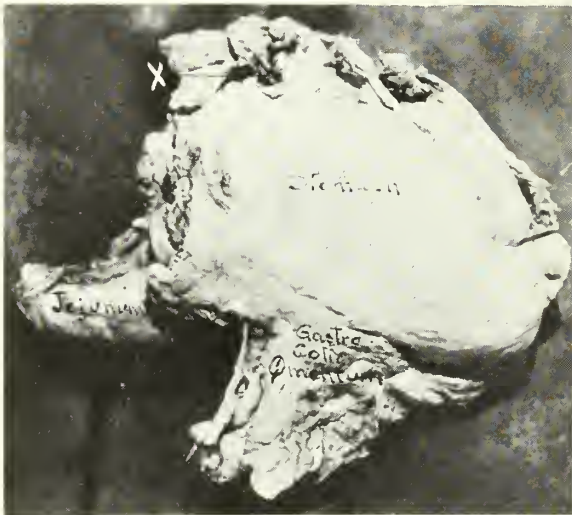


Fig. 1. X indicates perforation anterior.

events, might occur, or had occurred, to others dealing with this type of cases. I accordingly set out to canvass the literature in the Surgeon-General's library of Washington for like cases. My success was very meager, however, and I therefore addressed a personal communication to one hundred or more leading surgeons of large experience, asking for brief case-reports on this condition. Seventy replies were received, most of the surgeons stating they had not encountered this complication in their experience. I received five reports of perforations after a gastro-enterostomy,—one duodenal, one gastrojejunal, one jejunal, one perforation between the jejunum and transverse colon, and only one report of a post-operative perforation of the stomach per se. This case, described by Dr. T. C. Witherspoon, of Butte, Montana, is as follows:

Male, Swede, aged 35. Operation, December, 1906, for hard mass at pyloric end of stomach, with all usual symptoms of obstruction. Resection of three-fifths of the stomach, and the upper inch and a half of the duodenum; anterior gastrojejunostomy in the small part of the stomach remaining. Eight years later, perforation on the anterior surface of the stomach, just to the right of the anastomosis.

This case will be referred to later.

The stomach has been known to perforate into any one of the adjacent organs, and, curiously enough, into a quasi-remote organ, such as the heart, as in a case described by Tylecote, where the perforation occurred between the base of the



Fig. 2. X indicates gastrocolonic perforation.

ventricle of the heart and the cavity of the stomach, as shown in an illustration accompanying his article. The specimen taken from this remarkable case, shows the heart, pericardium, diaphragm, and stomach wall firmly adherent together.

Another unusual case is reported by DesBarres, in which death occurred from rupture of an ulcerating surface of the stomach into the portal vein. Autopsy showed a large quantity of blood throughout all the intestinal tract. This article is accompanied by an illustration of the pathological specimen.

I have not extended the scope of this paper



much beyond the discussion of such cases as I have been able to find exhibiting conditions similar to the one forming the basis of this paper. There are numerous reports to be found in the literature, of cases of secondary jejunal ulcer of the perforating or non-perforating type, by many authors (Bartlett and Cuming, Kaufman, Marquis, Mills, Moynihan, Percy, Tatlow).

Perforations between the stomach and the colon are also relatively common. Hamman, in a recent article, states that Patterson, in 1909, col-

clusions after examining the above number of cases, were upon the following points:

1. That peptic ulcer is so far observed only after gastro-enterostomy for benign affections.

2. That it occurs with hyperacidity, as well as with normal and subnormal acidity.

3. That it occurs with anterior as well as posterior gastro-enterostomy. The anterior operation, however, offers greater protection against the perforation (such as peritonitis) on account of its proximity to the anterior abdomi-

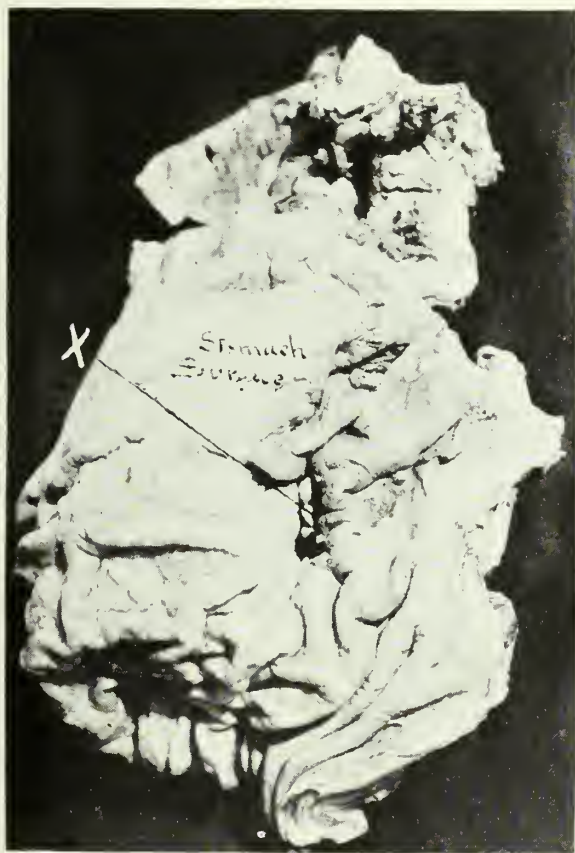


Fig. 3. X indicates stoma of gastro-enterostomy.



Fig. 4. X indicates stoma of gastro-enterostomy.

lected one hundred and fourteen cases of peptic ulcers of the jejunum following gastro-enterostomy, and that five of these perforated into the colon. Hilgenreiner, in 1912, added eight more cases from the literature, and Hamann adds one more case to this list.

Brodnitz, of Frankfurt, made, in 1903, a careful analysis of the literature of fifteen cases of peptic ulcer after gastro-enterostomy, including the case reported by himself (a secondary jejunal ulcer with silk threads remaining). His

nal wall. (W. J. Mayo reports a case which well illustrates this point.)

4. That peptic ulcer occurs often without symptoms; in other cases, nightly attacks of pain are prevalent.

5. That in half of the healed cases a recurrence of the ulcer is observed. This must be referred to an individual disposition, the cause of which is, at present, still unknown.

Brodnitz' conclusions I quote above, not only because they are applicable to the type of cases

included in his study, but also because they are applicable in the type of cases represented by the one forming the basis of this paper. If this complication be regarded as a rare one—and it is the only case I find occurring so soon following operation—in my opinion it is rare only in the sense of its location, i. e., a perforation of an ulcer, separate and distinct and at some distance from the primary lesion for which gastro-enterostomy was done, and not from a secondary peptic jejunal ulcer.

The difficulty in obtaining autopsies in private practice is regrettable, inasmuch as greater access to post-mortem material is essential to an



Fig. 5.

adequate solution of some of these most vexing problems in the surgery of the stomach. I feel, however, that the question is not so much one of the exact location of the perforation in question as it is of the fact that this case belongs to a group which we have all recognized but which, I think, has not received sufficient recognition; namely, a progressively ulcerating type, which simple gastro-enterostomy or simple excision is most impotent to cure. Several surgeons record cases of simple excision or of infolding of ulcer in which they did gastro-enterostomies at periods varying from a few weeks to several years following, for persisting ulcer symptoms. (Brinsmade, Hartwell, Morris.)

I wish to emphasize here that the important

point in all these ulcerative cases is the unknown or, as yet, unestablished point, of etiology. In the words of Smithies, "How is one to tell, clinically, in a given case of chronic gastric ulcer what future course it is destined to pursue? At present we have no means of prognosing the future course of any gastric ulcer, acute or chronic. The life-history of the affection seems to depend on certain unknown factors that are apparently entirely individual."

Gastro-enterostomy is, without doubt, far from being a curative procedure for all cases of ulcer of the stomach. It has come to be generally recognized that acute ulcers respond with least readiness to gastro-enterostomy. One has only to read the records reported from various clinics in order to learn that a certain per cent of the cases operated upon are not only not cured, but many are only slightly benefited or improved, and some not at all, after operation. My own experience is no exception. I listened to one of the most prominent surgeons in this country make the statement that he considered simple gastro-enterostomy one of the most unsatisfactory of abdominal operations.

Haines finds that 15 or 20 per cent of his cases show little or no improvement, 30 per cent are greatly improved, and the remainder are clinically cured.

Kocher records 70 per cent complete cures, 14.5 per cent results satisfactory, and 3.3 per cent results frankly bad.

Sherren records 86.5 per cent quite well in every way; 10 per cent much relieved; and 2.7 per cent little benefited.

Von Eiselsberg combines gastric and duodenal ulcer treated by gastro-enterostomy with the following results:

Total number of cases .....	334
Recoveries .....	317
Cured .....	134, or 42.27 per cent.
Improved .....	42, or 13.25 per cent.
Lost sight of .....	21, or 7 per cent.
Unrelieved .....	9.78 per cent.

Cases of pyloric exclusion with gastro-enterostomy:

Total number of cases.....	36
Deduct cases too recent.....	12
Of the remaining 24 cases:	

Number of cases cured.....	11, or 46 per cent.
Unrelieved .....	4, or 16.6 per cent.

Cases of resection for ulcer of the stomach:

Total number of cases.....	65
Cured .....	41,
or 63 per cent, of which 4 cases relapsed later and 2 died.	

Bourne gives results in 67 out of 92 cases of gastro-enterostomy for ulcer:



Excellent .....	29 cases, or 43.2 per cent.
Bad .....	26 cases, or 38.8 per cent.
Good .....	6 cases, or 8.9 per cent.
Fair .....	6 cases, or 8.9 per cent.

That the cause of this unsatisfactoriness is unsettled, is evidenced by the fact that we have so many different explanations for our failures to cure. Some critics are disposed to lay the blame to improper technic; some believe that the chief trouble lies in the matter of placing the gastro-enterostomy opening in relation to the pylorus; others stand firmly upon the question of closing the pylorus; etc.

Fundamentally, the operation itself is a drainage operation for the stomach. We find, however, that if the operation would perform its function of drainage, much would be gained in many cases, but many operators can testify that this function is not always and accurately to be counted upon; and here the advocates of pyloric closure have much comment to make. This last is a very live subject of discussion at the present time. There are critics for all methods, and it is sufficient to state that none of them have had the full measure of success. It is evident that the problem of securing an adequate and permanent occlusion of the pylorus is still far from solved. Whether this is a subject of high potency or not, however, and granted that a method may have been found for the adequate closure of the pylorus to supplement gastro-enterostomy, is it perfectly clear that the pylorus is better closed than left open. J. B. Murphy comments as follows: "Will excision and pyloric occlusion fall as much in our estimates the next five years as certain statistics would indicate gastro-enterostomy has dropped in the past five years?"

If it is granted that the acute, early-stage ulcer is not surgical, and that the chronic ulcer alone falls into the surgical class, we have thus to deal with a stage increasingly recognized as approaching the cancerous or precancerous stage. The ideal method, therefore, would be to resect the pylorus with the ulcer-bearing area.

Simple gastro-enterostomy, in a large degree, is a fairly extensive major operation upon the stomach, holding out the promise of only palliative results. An appendix or a diverticulum may be removed, whether diseased or not. Gall-bladders, in a great many more cases than formerly, are better removed than drained. The appendix may be removed entire, because it is practically functionless, and we may remove the gall-bladder entire because it is functional in a secondary degree; but the stomach is an organ of very specialized and primary function, and removal of any

part of it must be considered in a very close ratio to the diseased area.

Too great a burden is cast upon Nature's healing power, when we simply provide drainage and leave the primary lesion, such as an ulcer, to heal as best it may. The drainage operation has not revolutionized the patient's healing powers. How futile, for instance, has been gastro-enterostomy in curing the patients in the type of case which provides the subject for this paper? It is not effective in checking hemorrhage from a bleeding ulcer. It has come to be quite commonly known as an irrational procedure in acute ulcer, and there are many cases of ulcer which persist or recur *after* a gastro-enterostomy.

The cases utilized here show that simple gastro-enterostomy was insufficient to cure the patient. There is, undoubtedly, a factor which antedates the ulcer, in most of these cases of persistent or recurrent ulcer. In Witherspoon's very interesting case, the patient had an acute perforation of the stomach, eight years after gastro-enterostomy, resulting in a general peritonitis. Immediate operation was done, and the ulcer closed, the ulcer being upon the anterior surface just to the right of the anastomosis. The peritoneum was drained by a puncture above the pubes. The patient recovered, and a very important part of his history reads as follows:

After recovery, a careful search was made for the area from which a streptococcic infection might possibly lie. An enlarged tonsil, with a well-filled follicle, containing almost a pure culture of streptococcus, was discovered. From this a soup culture was made, and a vaccine was made and administered at the same time the tonsil was removed. Since then the stomach symptoms have entirely disappeared, and the patient is at present, May 22, 1915, in perfectly normal health. There is no thickening to be felt about the area of anastomosis, and the patient has returned to a comparatively normal state in every way.

The work of Rosenow is destined to unfold to us much concerning the pre-operative and post-operative, as well as non-operative, treatment of gastric ulcer.

When an ulcer does become surgical, more radical measures must be adopted. If the patient's condition is severe enough to warrant surgical interference, the operation should be aimed more directly at extirpating the lesion. If the technical difficulties are such that the mortality-rate is increased, then the patient must come to operation earlier, and the technic of more radical treatment must be improved upon. The point to keep well in mind is, that an ulcer against which a patient has been struggling for a period of time, if surgical, should itself be radically treated



and not palliated by simple gastro-enterostomy. It is equally important that medical treatment should not be abandoned, as is so frequently done, when the patient is discharged from the hospital.

In conclusion I should place emphasis upon the following points:

1. That gastro-enterostomy is not a curative procedure for all ulcers of the stomach.
2. That simple gastro-enterostomy will not suffice where excision should be done.
3. That it does not revolutionize the patient's healing powers per se.
4. That post-operative medical care should be established in all cases until cumulative experience tells us where to leave it off.
5. That we need more light on etiology.
6. That from the patient's standpoint simple gastro-enterostomy does not accomplish all that should be reasonably expected of a fairly major surgical operation.

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#### DISCUSSION

DR. WILLIAM J. MAYO (Rochester): Dr. Collins has done a real service in looking up the literature of this extremely rare condition and in bringing the cases up to date, adding to them one of his own.

A very interesting feature of the pathologic condition as shown on the screen was the transverse colon behind the stomach at so high a point. The transverse colon should lie below the stomach, and here we find that in a month or six weeks after operation it is completely behind the stomach up close to the lesser curvature. The question is, Why was it there, when did it get there, and whether this condition might have existed at the time of the gastro-enterostomy? I will be interested to hear what Dr. Collins has to say in regard to this particular feature.

It is true that gastro-enterostomy does not furnish the complete and satisfactory results in ulcer of the stomach that it does in ulcer of the duodenum. It is extremely fortunate that ulcer of the duodenum is so much more frequent than ulcer of the stomach. About

seventy-five per cent, at least of all peptic ulcers, are in the duodenum; and as long as the stomach itself is normal and a gastro-enterostomy is done, a cure may be expected, or, at least, very great improvement, in as high as ninety-five per cent of the cases. I know of no operation in surgery that gives more satisfactory results than gastro-enterostomy or an equivalent operation in ulcer of the duodenum; but in ulcer of the stomach deformities and various pathologic conditions occur, as pointed out by Dr. Collins; and frequently the ulcer lies approximately nearer the esophagus than a gastro-enterostomy can be made.

I fully agree with Dr. Collins that, when it is at all possible, the ulcer in the stomach should be taken care of, inasmuch as I believe that there is a considerable percentage of cases that later develop carcinoma on ulcer. Of course, this question is a mooted one, and can be settled only by specimens that are removed early. It is a real danger, I am convinced; and I think that most surgeons are convinced of the same thing. We can say that the failures of gastro-enterostomy are in the main due to, first, the fact that the condition in the stomach may not be suitable for operation, that is, the ulcer may be proximal to the gastro-enterostomy, in which case we cannot expect the gastro-enterostomy to cure the patient; Secondly, to put it in the form of a Hibernianism, gastro-enterostomy has been made in instances when ulcer did not exist, the operation being based on the symptoms of the patient. No one should do a gastro-enterostomy for ulcer which cannot be accurately demonstrated at the time of the operation. A great many such operations have been done when later operation showed that no ulcer existed.

DR. A. C. STRACHAUER (Minneapolis): There have recently been two very great advances made in gastric ulcer surgery. One is the fact that gastro-enterostomy for ulcer is no longer performed except when an ulcer can actually be demonstrated at the operating-table. This at times requires an exploratory gastrotomy, but the diagnosis of ulcer must positively be verified. Much of the earlier dissatisfaction with no-loop gastro-enterostomies in competent hands was due to this omission. If the ulcer cannot be demonstrated, it is not a surgical ulcer.

The second advance is the eradication of the ulcer, when possible, either by excision or by the method of Balfour with the actual cautery. Gastric malignancy unquestionably frequently develops on an old ulcer base. Duodenal ulcers heal without scar-formation, and cancer never develops secondarily to them.

I believe that the majority of surgeons of experience in gastric surgery would feel concerned as to the possibility of malignant development if they personally had a gastric ulcer; and they would feel much happier and easier in mind if their ulcer had been actually eradicated.

Perforation of an ulcer following gastro-enterostomy is an extremely rare occurrence. The eradication of the ulcer prevents this complication.

DR. COLLINS (closing): Dr. Mayo asked in regard to the position of the colon at the time of operation. The stomach came up nicely. The stomach and colon could be thrown back to get at the posterior part of the stomach; the colon came up nicely, and I can positively say from the appearance of the outside of the stomach there was no ulcer at the points where these perforations occurred, posteriorly or anteriorly.

# THE JOURNAL-LANCET

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## THE SURGICAL ASPECT OF INJURIES TO THE CRANIAL BONES

Dr. Willaim Sharpe, in the *Journal of the American Medical Association* for May thirteenth, has a very interesting and timely article on the treatment of brain injuries in adults, and he shows the necessity of earlier and more frequent operations before the brain has been too long irritated or compressed. Not infrequently, patients are brought into hospitals with a history of injury to the head, and the first onset of the symptoms is quite misleading. The patient complains of pain, suffers more or less from shock, and shows changes in the pupils, alterations of the pulse, some elevation of temperature, but otherwise is seemingly in good condition; and yet after from two to three days a depression is apparent, and the patient steadily grows worse. It is at this time that the surgeon is most apt to interfere by operation, when, as a matter of fact, as shown by Dr. Sharpe's cases, the time to interfere is before this unconsciousness develops.

The conclusion which Dr. Sharpe draws from his wide experience is, that, after the severe shock subsides and any symptoms of increased intracranial pressure develop, the patient should be immediately relieved of the pressure. This fact must be kept in mind, that the opera-

tion per se is not necessarily on the fracture or for the fracture, but is solely for the relief of intracranial pressure. True, if the patient is injured in a certain part of the skull, and there are marked evidences of a depressed fracture, the fracture should be operated on, and the depressed points elevated or removed; and this in itself may be sufficient to prevent further pressure within the head. In the majority of cases where it is impossible to determine the exact site of fracture, or even the supposed fracture, a subtemporal decompression prevents further edema or swelling of the brain substance, and not infrequently saves life, and unquestionably prevents a development of post-traumatic symptoms.

This statement is a rather broad one, and it must not be applied to every case of head injury, for the reason that there are many cases in which an injury has occurred which produces only temporary effects, and, unless there are symptoms of pressure, no operation should be performed, for a certain proportion of head injuries recover spontaneously. It is well, however, to keep in mind the possibilities and the probabilities of injuries to the bones of the head at whatever time of life, and a decompression operation, as it is performed today, is practically free from danger, and in all probability will produce marked relief. The surgeon or the physician should not be disappointed if the surgical interference is not immediately followed by benefit. This is frequently illustrated in an attempt to remove brain tumors, or to relieve cranial pressure from brain tumors. Usually, the after-effects of brain-tumor removal are apt to be discouraging, and occasionally a year, or longer, must elapse before the patient shows the real benefit of the operation; and likewise a similar situation is found in an effort to relieve intracranial pressure from traumatism. No one can foresee the extent of the concussion or contusion of the brain or the jarring of the brain substance; and for that reason time must elapse before they resume their normal functions. A selected number of cases are undoubtedly clinically cured by operation, and one such success is justifiable, even though the operator has but one in a large number of surgical operations.

Dr. Sharpe did not write his paper with the idea of stimulating over-ambitious men to head surgery. The paper was written to emphasize the necessity of carefully selecting head injuries which might be benefited by surgical interference.

## THE ANNUAL MEETING OF THE HENNEPIN COUNTY MEDICAL SOCIETY

The annual meeting of the Hennepin County Medical Society took place at the Minneapolis Club on the night of June third. This annual affair consists entirely of a social event, more or less marred by the choice of speakers.

The celebrated cartoonist, "Bart," was the chief entertainer, and his methods of drawing cartoons was very aptly illustrated with his rapid-fire talk. During the thirty minutes in which he held the stage, he brought out cartoons of various medical men who belong to the Society, showing their so-called pet traits, as evidenced by his large cartoon heads. After Bart had finished his entertainment, the toastmaster, Dr. J. G. Cross, who is also President of the Hennepin County Society, introduced the editor of THE JOURNAL-LANCET, who was to speak on the "Trials and Tribulations of a Medical Editor." Just as the speaker arose, a Victrola with "Cohen's Appeal to the Health Department" interrupted the proceedings, and probably was sufficient to put a damper upon the speaker. The editor apologized to the Hennepin County Medical Society for inflicting his criticisms and comments; and, as he sat down, he found that he had degenerated into nothing but a common scold. If the opportunity is offered again, he promises to make retribution and to keep away from scolding propensities.

Dr. Caryl B. Storrs spoke on medical ethics, and illustrated comments by a leaf from his early field of practice, and wound up by saying that medical ethics were no different from any other ethics, that every man was supposed to be a gentleman, conduct himself in a gentlemanly manner, and to act in all fairness toward his fellow-men.

The chief speaker of the evening was Dr. George Young, of the United States Public Health Service. Dr. Young has been making a survey of the health departments of Minneapolis and St. Paul, at the request of the City Council in Minneapolis and Commercial Club of St. Paul, made through the Minnesota State Board of Health. Dr. Young has gone over a large mass of detail in both health departments, and has accumulated statistics upon which he will build his report to the U. S. Surgeon General, and will, in turn, submit it to the Minnesota State Board of Health, to be transmitted to the Twin Cities. This report is not likely to come out much before the middle or latter part of July. It has been assumed by a good many who

do not understand survey work that Dr. Young was out here to look up an occasional case of smallpox or diphtheria, but that is far from his line of duty. He is simply an examiner and advisor in public health methods, and doubtless his criticism, backed by the Federal Government, will carry a great deal of weight with the municipal health committee. Dr. Young is adept in keeping his opinions to himself,—that is, no one knew what he really thought of the Minneapolis and St. Paul Health Departments, as his remarks were simply general and illustrated the methods of survey through the Federal Government. Dr. Young was loaned for a period of four years to the City of Chicago, where he became the Health Commissioner, and it was through his efforts that the Chicago Health Department was so greatly improved.

The Civic and Commerce Association of Minneapolis has been interesting itself in the municipal health work for a period of years, and so far has been instrumental in helping the Commissioner of Health in improving his department; and doubtless, when Dr. Young's report is sent out, they will co-operate with him in still further improving the problems of health as applied to large cities.

Perhaps this survey will serve as an example for smaller cities, and it is quite likely that the suggestions that grow out of the survey will be very helpful to district and municipal health officers,—that is, they will be if politics do not intervene. It is one of Dr. Young's functions to create an atmosphere of public health relieved of political influence.

## REPORTS OF SOCIETIES

### MINNESOTA NEUROLOGICAL SOCIETY

The regular meeting of the Society was held at the Town and Country Club, May 16, 1916. In the absence of the president and vice-president, the secretary, Dr. A. Morrison, presided.

Dr. Sneve presented a case (patient of Dr. Sweeney's) of Raynaud's disease, in a male 56 years old, a stone-cutter. The typical attacks of pallor, flushing, and syncope began in 1910, with gradual increasing frequency and severity. At present the patient shows signs of gangrene on the fingers of both hands and both elbows, and a small scar of an old ulcer on the left ear. There is marked anesthesia of both ulnar nerves. There has been a constant high blood-pressure.



Dr. Ball reported two cases of tubercular meningitis, and demonstrated one case of either paresis or pseudoparesis alcoholica. In the first case 2 mg. of Koch's old tuberculin was given intraspinaly because of a favorable report by Baci-galupo on this method of treatment. The injections did not appear to influence the course of the disease, either favorably or unfavorably. This case was one of cervical Pott's in a boy five years old. The first symptoms were noticed on April 30. The patient died on May 10. The spinal puncture was made on May 2. The pressure was greatly increased. The fluid colorless. Nonne + +; pleocytosis, 170/3; gold-sol, 000333000. Tubercle bacilli were found in the fibrin clot which formed in the spinal fluid after it had been left in the ice-box twenty-four hours.

The other case was in a boy 8 years old with a tuberculous knee-joint. This patient was taken sick on May 1 and died on May 11. Spinal puncture was made on May 2. The spinal pressure, as in the first case, was greatly increased; the fluid, colorless; Nonne, + + +; pleocytosis, 351/3; gold-sol, 4442, and 44200. The tubercle bacilli were not found in the case, but the post mortem corroborated the diagnosis.

In the third case, the psychic and neurological symptoms are quite typical of a paresis, while the serobiological reactions are entirely different from the ones usually occurring in this disease. The patient is thirty-four years old. He gives a history of syphilis twenty years ago, for which he received fairly good treatment at the time. He has always drank to excess. About April 1 he went on a spree. On April 7 he came under my care. At this time he was loud and noisy in his conversation; had expansive ideas; and had to be restrained. He had involuntaries of urine and feces. His speech was typical of paresis; the pupils reacted to light, but were a little sluggish; the knee-jerks were gone. Apparently, up to the beginning of the spree, he had been normal mentally. On April 12, 1916, the serobiological findings were: S. W., negative; spinal pressure, increased; Nonne +; lymphocytes, 128/3; Wassermann in the spinal fluid in 0.2 and 0.8, negative; gold-sol, 001100000.

On April 19, 1916, S. W., negative; spinal pressure, increased; lymphocytes, 168/3; Nonne +; gold-sol, 1223310000; Wassermann in 0.2 and 0.8 negative, in 1 c.c., slightly positive.

On May 15, 1916: S. W., negative; spinal pressure, increased; Nonne, —; Wassermann in

0.2, 0.8, 1 c.c. and 2 c.c., negative; lymphocytes, 39/3; gold-sol, 113321000.

This patient still has typical parietic speech and expansive ideas, and is in a constant state of euphoria. He is much better than he was at first, however, and is able to be around. His improvement has thus far been a steady and gradual one. In view of the conflict between the somatic and psychic symptoms, on the one hand, and the serobiological reactions, on the other, the diagnosis and prognosis in this case become difficult. The question is to decide whether the etiological factor is syphilis or alcohol. If you can depend absolutely on the serobiological reactions in making a differential diagnosis in such cases, then, surely, in this case we are justified in excluding syphilis.

Dr. Crafts reported a case of disseminated sclerosis, in which all pathologic reflex changes were present. It is most unusual to be able to demonstrate all these reflex changes in an individual case.

E. M. HAMMES, M. D.,

Secretary.

#### MINNESOTA ACADEMY OF MEDICINE

The May meeting of the Academy was held at the Town and Country Club, on May 10, 1916, Dr. Head presiding. The minutes of the April meeting were read and approved.

A number of cases were reported. Dr. Christison gave the details of an intussusception in an infant, fourteen inches of the gut being removed. The child recovered.

Dr. Arnold Schwyzer reported a case also of intussusception that was not dealt with until fourteen hours after its occurrence. In this instance the gut was returned after relieving the intussusception. A fecal fistula followed.

Dr. Archibald Wilcox mentioned the case of a man, aged 45, who had been in the hospital for three weeks, presumably suffering from duodenal ulcer. He was suddenly seized with pain in the right side. This was at eleven o'clock in the evening. The following morning his abdomen was rigid, and there was a marked leucocytosis (20,000). Upon examining the aspirated contents of the stomach, it was believed to be an appendiceal, and not a duodenal, perforation. Abdominal section proved it to be the former.

Dr. Geist showed several radiographs of a broken knee-cap before and after reparation.

Dr. Cook reported the following case of diverticulum of the bladder in a female, aged 45; married. Bladder symptoms (frequent urination, tenesmus, and incontinence) have persisted

since undergoing an abdominal hysterectomy for a large fibroid one year ago. The urine has been alkaline, and has contained a variable amount of pus; one day only enough to make it cloudy, the next day enough to make it thick and ropy. The bacteria have been chiefly staphylococci. Cystoscopy showed three small bladder-stones, which were crushed and removed through the cystoscope. The urine from both kidneys was normal. Cystoscopy relieved the tenesmus, but the purulence and incontinence of the urine persisted. A second examination of the bladder revealed a large diverticulum, in which was found another stone; the opening was near the right urethral orifice, and about twice as large. No operation yet has been performed. Vesical diverticula are very rare in women. In this instance its development probably can be accounted for by the presence of the fibroid uterus, which for years caused sufficient obstruction to occasion the diverticulum. There was no trabeculation of the bladder wall.

Dr. H. P. Ritchie reported a recovery in a case of tetanus. F. H., aged 34, white, was injured by an explosion on the morning of February 5, 1916, suffering severe burns about the head, body and extremities; the little and ring fingers were accidentally amputated. Nineteen days later I was called in consultation with the idea of a perforated abdominal lesion, because of extreme rigidity and complaint of severe pain. The symptoms suggested tetanus, originating probably from the site of the amputation which was still unhealed. Treatment was instituted as follows: antitetanic serum was given twice daily, 3,000 units at each injection. A 25 per cent saturated solution of magnesium sulphate was injected every three hours into the areolar tissues of the abdomen, beginning with 10 c.c. a dose. This was increased to 20 c.c. (an injection) during the height of the spasms, so that for almost eight days he was getting 120 to 140 c.c. of a 25 per cent solution of magnesium sulphate during the twenty-four hours. Morphia sulphate was necessary for rest, and was given in  $\frac{1}{4}$ -gr. hypos. when indicated. As much as  $\frac{3}{4}$  gr. was given in twenty-four hours. His disease lasted eighteen days. During this time 74,500 units of antitetanic serum were given; 1,585 c.c. of magnesium sulphate, and  $8\frac{3}{4}$  gr. of morphia sulphate. He required constant attention of a day and night nurse, and especially the frequent observation of the interne, Dr. Oftedal, of the City Hospital, because of the frequency of hypodermic medication, the varying delirium

of an almost constant fever of  $102^{\circ}$ , and the necessity of mental and moral support, so that for hardly a moment was he left alone. We are unable to determine any striking or immediate effect of the magnesium sulphate, except during the recession period it seemed that a relaxation of some degree would follow the injection. Caution is required in its use because of the possibility of paralysis of respiration. In this case the first dose of 10 c.c. gave a great rapidity of respiration for about twenty minutes, but no subsequent dose showed any effect. We were ready for spinal injection of the magnesium sulphate, but there was no time at which this seemed to be indicated, as the man's strength was good and the convulsions never so severe or long-continued as to greatly exhaust. The spinal puncture is not without danger of respiratory paralysis, which, if it occurs, requires washing of the spinal canal with salt solution, a procedure in itself not to be lightly undertaken. In desperate situations Melzer says it is indicated as the effects are thereby immediate. He recommends 6 to 7 c.c. of the 25 per cent solution for this injection. We also had at hand a solution of calcium chloride, which has such marvelous effects as a respiratory stimulant. It is generally conceded that the longer the incubation period the less severe the disease. In this case, seventeen to nineteen days leads us to suppose it to have been a mild infection. Whether this circumstance or the effect of the treatment carried him through, the fact that he recovered from so serious an illness was very satisfactory.

Dr. H. T. Nippert read his thesis on "Emphysema in Infancy and Childhood," and Dr. A. W. Abbott presented the subject of "The Value of the X-Ray in Intestinal Obstruction."

Both papers were fully discussed.

One visitor and thirty members were in attendance.

Meeting adjourned until September.

FRED E. LEAVITT, M. D.,

Secretary.

## NEWS ITEMS

Dr. H. J. Robb, of Flandreau, S. D., has moved to Belleville, Mich.

A Red Cross society has been organized in Dickinson, N. D.

Dr. S. M. Ferguson, of Brocket, N. D., has moved to Avoca, Iowa.

Dr. Henrietta P. Miller has moved from Cloquet to Hamilton, Ohio.

Dr. E. W. McEssy, formerly of Park River, N. D., has moved to Fargo.

Dr. J. C. Wiig has moved from Flaxton, N. D., to Wahpeton, in the same state.

Dr. O. D. Pherrin, formerly of Lake Andes, S. D., has located in Gayville, S. D.

Dr. H. L. Hulburd, of Morris, died May 13 at the age of 65 as a result of blood-poisoning.

An eighteen-bed hospital has been opened in Willmar by the firm of Drs. Frost & Jacobs.

Tag Day efforts of Rochester netted \$625, which will be used for the Visiting Nurse fund.

Dr. G. R. Melzer, of Evansville, has moved to Morris and taken the practice of the late Dr. Hulburd.

Dr. Harold W. Stone, of Wayzata, was married May 15 to Miss Francis Carlin Murphy, of Faribault.

Dr. F. M. Rose, for years a resident of Faribault, died recently in California from a stroke of paralysis.

Dr. A. P. Kearn, of St. Paul, died on June 3 at the age of 63. Dr. Kearn had practiced in St. Paul for thirty years.

A semi-annual meeting of the Southwestern Minnesota Medical Association was held last month at Adrian, with a large attendance.

Dr. E. M. McLaughlin, of Winona, is taking a vacation in the form of an auto tour covering several thousand miles and extending to Kentucky.

The Rice County Medical Society met on June 1 at Northfield. Dr. A. S. Hamilton, of Minneapolis, was the guest of the Society, and read a paper.

Dr. Wm. Pitt Cleveland, of Fargo, N. D., died last month at the age of 67. Dr. Cleveland located in Dakota Territory in 1879 at Caledonia, where he practiced over twenty years, going thence to Fargo.

The site for the tuberculosis sanatorium for Pennington, Marshall, and Roseau counties has been approved by the State Board of Health; and the erection of a three-story building will be commenced at once.

The Goodhue County Medical Society held a quarterly meeting on June 1 at the Mineral Springs Sanatorium. Papers were read by Dr. I. J. Murphy, of St. Paul; Dr. A. C. Strachauer,

of Minneapolis; Dr. E. L. Christin, of Rochester; and Dr. N. L. Werner, of Red Wing.

The Stearns-Benton County Society met last month at St. Cloud. Dr. Philip Stangl reported an interesting case of hydatidiform cyst of the uterus. The uterus was removed, and a specimen of the cyst was exhibited. Dr. W. L. Beebe read a paper on summer diarrhea in children, which was followed by a full discussion.

The graduate and registered nurses of North Dakota met at Fargo last month, and organized a state association to be known as the North Dakota Association of Registered and Graduate Nurses, electing the following officers: President, Miss Emily Scripture, Fargo; vice-president, Miss Lena Gintler, Grand Forks; secretary-treasurer, Miss Jean Brown, Fargo.

The South Dakota State Medical Association held its Thirty-fifth annual meeting at Aberdeen, S. D., on May 23-25. Dr. Frederick R. Green, of Chicago, and Dr. J. D. Lewis, of Minneapolis, were the special guests of the Association who read papers. The following officers were elected for the current year: President, Dr. F. M. Crain, Redfield; first vice-president, Dr. H. J. C. Coobs, Scotland; second vice-president, Dr. D. L. Scanlon, Volga; secretary-treasurer, Dr. R. D. Alway, Aberdeen. The transactions of the meeting will appear in an early issue of THE JOURNAL-LANCET.

#### LOCUM TENENCY WANTED

By physician. Nine years' general practice and hospital experience. Licensed in Minnesota but will go anywhere. Address W. H., care of this office.

#### HOSPITAL FOR SALE

Hospital with surgical and general practice in a progressive Minnesota town with large surrounding field. Price and terms reasonable. Address 367, care of this office.

#### ASSISTANT WANTED

Assistant wanted to do eye, ear, nose, and throat work, in a central Minnesota city of 5,000. Scandinavian preferred. Position open at once. Address 353, care of this office.

#### PRACTICE FOR SALE

North Dakota practice for sale. No competition. Population, 700. Excellent schools. Large territory. Will sell for \$500, including household goods. Address 363, care of this office.

#### DESK SYSTEM FOR SALE

One complete Desk System of the American Desk & Register Co., with full line of stationery. Beautiful weathered oak desk. Cost \$200. Will sell for \$100 cash. Address 364, care of this office.



## HOSPITAL ASSISTANT WANTED

Wanted, in connection with a private hospital, an ambitious young man with fair knowledge of the microscope and pathology, and with a desire to become a first-class internist. Will pay salary and expenses at first, and partnership if he makes good. Address 366, care of this office.

## PRACTICE FOR SALE

A \$4,500 Southern Minnesota practice, collections 100 per cent, in fast growing modern town of 600 with high school, churches, fine business houses, and two railroads, Richest farming country in state, fine roads, excellent opportunity to make money. Residence optional. Address 355, care of this office.

## PHYSICIAN WANTED

In a Southern Minnesota town of 600. Must be up to date, sober, and not afraid of work. Competition very easy. Excellent chance to build up a good general and surgical practice. A competent physician is assured of good support from the start. References requested. Address 358, care of this office.

## LOCUM TENENS WANTED

Wanted, locum tenens for two months, beginning in July. Must be a Mason. A speaking knowledge of German would be helpful. Opportunity of working into partnership if mutually agreeable. Town of 600, in excellent territory in North Dakota. Address 360, care of this office.

## PRACTICE FOR SALE

In a village of eastern South Dakota. Population, 1,000; distance to other doctors, 12, 20, and 24 miles. Snap for any doctor; \$3,000 to \$4,000 business; thickly settled; one competitor; territory as good for business as any in state of same size. Price, \$500, actual cost. Everything A1. Leaving state. For full information address 346, care of this office.

## PARTNER OR PURCHASER WANTED AT ONCE

Partner or purchaser, contract mining practice, on Iron Range, in Northern Minnesota. Modern hospital, 20 beds, complete up-to-date equipment, mines just starting. Future assured. Fine country, community of over 5,000. Good auto roads; run all the year. A rare opportunity for a good live doctor. Small amount of cash. Terms to suit. Address 359, care of this office.

## PRACTICE AND HOSPITAL FOR SALE

North Dakota practice and hospital for sale. No competition. Population, 500. Excellent schools. Thickly settled, large territory. Patronized by a number of doctors of near-by towns. \$3,000 will swing the deal. Practice runs \$6,000 to \$8,000. Modern equipment of hospital. Fine for surgeon. Address Dr. Kamman, Hannah, N. D.

## LOCUM TENENCY WANTED

Graduate of Class A+ school who finishes a year's internship in a city hospital wants position as locum tenens. Address 362, care of this office.

## WANTED, LOCUM TENENCY

Experienced physician and surgeon wishes locum tenency in or near the Twin Cities for any length of time. Very ethical, good presence, good hustler. Speaks German and Scandinavian languages. Address 357, care of this office.

## PHYSICIAN WANTED

I own an almost complete outfit for a doctor's office, both instruments, furniture and library, located at Velva, N. D. The place is open for a Norwegian physician. This is a good place for the right man. For further information write the owner, John Eltun, Northfield, Minn.

## ASSISTANTSHIP WANTED

Wanted: Permanent association with busy surgeon, by ambitious, active young physician. Graduate of University of Minnesota; one year as interne at large city hospital; one year assistant in surgical practice. Single; no bad habits; can speak German. Special training in laboratory and x-ray work. Am interested in surgery, and am not afraid of hard work. Address 365, care of this office.

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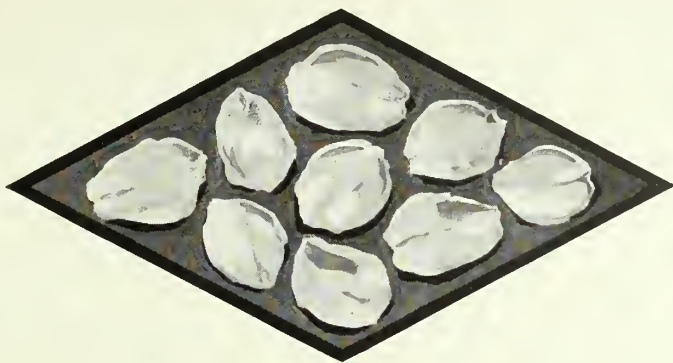
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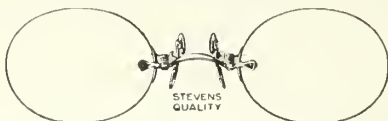
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## THE CLASSIFICATION AND TREATMENT OF THE NEPHRITIDES\*

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CINCINNATI, OHIO

### I INTRODUCTION

When we discuss so important and practical a question as the classification and treatment of the nephritides we can hope to make progress only as we come to be of one mind regarding the principles which should guide us, because for the treatment of nephritis, if you are familiar with its history, everything has been suggested. There were times when we used hot irons upon the back; and, in more recent days, prayer has been proposed to overcome the serious signs and symptoms that frequently arise in the course of this clinical entity. If we are going to choose between such extremes or find a middle course, it behooves us, first of all, to ask ourselves what is really the nature of the changes that occur in the kidney and elsewhere in the body; and only as we arrive at a logical conclusion regarding the nature of these changes, can we hope to make any advance and to agree upon the question of treatment.

Our discussion will, I think, demonstrate that the problem of nephritis is in good part only a subheading of a larger problem in medicine, namely, that of edema; and this problem of edema, so much discussed in medical circles, is

in its turn but a subheading of a still greater problem with which the medical man has concerned himself but little. This is the physiological question, so much argued by plant and animal physiologists, which asks why a cell or group of cells in a plant or animal holds any water at all, and why the amount thus held under normal circumstances (as is the case, for months and years even, in our bodies) is so constant.

### II CRITICISM OF THE OSMOTIC THEORY OF WATER ABSORPTION

I shall not burden you with a recitation of the many hypotheses which have been proposed to explain this fundamental problem. They are all of them so inadequate that their inadequacies are admitted even by the proponents of these hypotheses. Let me merely illustrate the matter by touching upon the most important and most heralded of them, namely, the osmotic theory. According to this theory, our cells are surrounded by a so-called semipermeable membrane, which by definition is one that is permeable to a solvent (water, in the case of the human body), but impermeable to all dissolved substances.

Suppose we grant this assumption in the case of any cell, or any group of cells composing an organ, or for the whole body. Then, depending upon the changes in the concentration of dissolved materials within and without a cell, an organ, or the whole body, water will move into or out of these, depending upon the amount of the differences in concentration, and always from

\*This is an abstract of the stenographic report of the address in medicine before the Minnesota State Medical Association meeting in Rochester, Minn., Oct., 1915.

For a fuller discussion of many of the points touched upon in this talk than is possible in the pages of this journal, the reader who may be interested in the subject must be referred to my book "Oedema and Nephritis," second edition, 1915, published by John Wiley and Sons, New York City.—The Author.



a region of low concentration toward that of the higher concentration of the dissolved substances. Such differences in concentration, therefore, serve to make possible a movement of water into and out of cells. But this is true only as long as the cells are surrounded by semipermeable membranes which hold the dissolved substances in their places.

Biologically, however, this conception of the cell is impossible, for were our cells surrounded by such semipermeable membranes, our food substances and oxygen could never get into them, and the products of cell metabolism like urea, carbon dioxid, etc., could never get out. Obviously, if our cells are to live, both these things must be continuously possible.

To get around these difficulties, the proponents of the osmotic theory have made the membranes, supposed to exist about the cells, partially permeable. But as soon as this is done, concentration differences within and without the cell can no longer come to pass, for the diffusion of the dissolved substances from regions of higher concentration to regions of lower will immediately wipe out such inequalities. The concentration differences necessary to move the water will, therefore, no longer come to pass. And yet, physiologically, water must at all times be able to pass into and out of cells.

As is readily apparent, therefore, the adherents of the osmotic hypothesis can take their choice. They can have semipermeable membranes around their cells, and so make concentration differences move the water into and out of them, but no food, no oxygen, and no metabolic products; or they can dispense with these membranes, and so get dissolved substances into and out of the cells, but no water. Physiologically, however, it must be possible for both these things to happen, and without interruption. No theory which encounters difficulties in any of these directions can ultimately survive.

### III THE COLLOID THEORY OF WATER ABSORPTION

In casting about for elements which might be used for a better understanding of the laws of the absorption and secretion of water—and of dissolved substances—as observed in the human body under physiological and pathological circumstances, we investigated the properties of the colloids,—the very substances which on the osmotic hypothesis are cast aside as of little or no importance. A study of the colloids has shown that these not only play a rôle in the general problem of absorption and secretion, but that they

play the dominant one, determining, not only how much water and dissolved substances a cell, tissue, or the whole body may hold under normal circumstances, but also how much it will hold in various pathological states.

We shall devote chief attention today to the problem of the absorption and secretion of *water*.

In order to illustrate the laws governing this and their biological significance, allow me to call your attention to the behavior of the protein colloids when subjected to different external conditions, so far as their properties of water absorption and secretion are concerned.

I show you here a set of test-tubes of uniform diameter, into each of which has been introduced the same weight of a dry protein, namely, fibrin. Let us see how the protein behaves when different kinds of solutions are poured upon it. If the unit weight of fibrin is thrown into water it swells somewhat; but if the same amount is placed in a test-tube containing a very dilute acid, it swells very much more. Instead of absorbing, for example, some five or six times its weight of water, it may, in the acid, be made to absorb some twenty, thirty, or even forty times its weight. If the acid is neutralized through the addition of an alkali, the absorbed water is again given off, while the fibrin shrinks. Water absorption is followed by water secretion—in other words, the process is reversible. Let me add that all acids behave in this way. Generally speaking, the swelling is the greater the higher the concentration of the acid, though with the so-called “strong” acids a concentration is finally reached beyond which further addition of acid does not increase, but decreases, the amount of water absorbed.

Let me show you next another set of tubes. All these tubes contain the same concentration of an acid. The first contains pure acid only; to all the rest have been added progressively greater amounts of a salt (sodium chlorid). You observe that the addition of the salt has reduced the amount of swelling in all the tubes, and that the greater the concentration of the added salt, the greater the amount of this reduction. Observe, too, that we have added to the acid a *neutral salt*. The effect, you see, is, therefore, not merely due to a neutralization of the acid. In other words, even though we have practically the same acid concentration in all the tubes, we have produced more and more dehydration of the protein as we have increased the concentration of the salt. This extremely interesting an-

tagonism between acids and neutral salts is of the greatest physiological and pathological importance.

Let me now call your attention to a third set of tubes. In this set, a constant weight of fibrin has again been introduced into a definite concentration of an acid, but to the acid there has been added this time the same concentration of *different* salts. When the effects of a series of sodium salts are thus compared it is found that they all again reduce the swelling, but in very different degrees. The chlorid of sodium, for instance, produces the least dehydration; the bromid and nitrate are somewhat more powerful; the acetate occupies a middle position; most powerful are the sulphate, tartrate, and citrate. If we compare the dehydrating effects of a set of salts which have a common acid (a set of chlorids, for example), we find that ammonium, potassium, and sodium salts are less active in producing dehydration than magnesium or calcium, and these last are less effective than copper, iron, or mercury.

You may be inclined to say at this point that these academic tables are of no interest to you in your problems of practical medicine. Let me emphasize, therefore, that they are. As a matter of fact, every good doctor has worked empirically with these facts for decades. What we call the saline cathartics are nothing more than those salts which, without being particularly poisonous, are peculiarly powerful in bringing about a dehydration of protein colloids. The cathartic salts diffuse into the intestinal wall, dehydrate it, and the squeezed off water then keeps the intestinal contents liquid. Franz Hofmeister (in somewhat different terms) pointed this out many years ago, and, while many have grown famous opposing his fundamental suggestions, we are destined shortly to return to his views.

With the facts just discussed in mind, you see at once why sodium chlorid, sodium bromid, sodium iodid, etc., are not ordinarily used as saline cathartics. They are salts which, when introduced into the gastro-intestinal tract, diffuse into the mucous membrane of the intestines; but, since they do not produce much dehydration, except in high concentration, they are not likely to produce the fluid stools characteristic of an effective catharsis. On the other hand, sodium phosphate and sodium citrate, even in low concentrations, are powerful dehydrators of protein colloids, are our standard saline cathartics. Since magnesium is a better dehydrator than sodium

or potassium, magnesium sulphate and magnesium citrate are more powerful cathartics than the corresponding sodium or potassium salts, and the older doctors knew and worked with this fact long before the reason for it was understood. The tremendous dehydrating effects of mercury are taken advantage of in everyday practice when we use calomel for cathartic purposes. Even though this salt is practically insoluble, still those trifling amounts which do dissolve produce the tremendous dehydration which we observe after an effective dose of this drug.

#### IV THE ANALOGY BETWEEN THE ABSORPTION OF WATER BY PROTEIN COLLOIDS AND BY TISSUES

I have detailed now a series of test-tube experiments which we may apply with entire safety to the problems of water absorption and secretion as observed in the body. Not only qualitatively but quantitatively, as well, *every cell, tissue and organ in such a complicated body as our oxen, in fact the body as a whole, behaves in the same fashion as do the fragments of protein colloid in these test-tubes.* Thus, muscle, eyes, brain, liver, kidney, etc., swell more in any acid than they do in water. The addition of any salt to the acid reduces the amount of this swelling; and this the more the higher the concentration of the added salt. At the same concentration, different salts are unequally effective in this regard, and here the same order is noted as in the case of the pure protein, such as fibrin.

The amount of swelling which any protein colloid, such as fibrin, shows in a neutral medium corresponds with the normal swelling (normal water content) of any cell or tissue. The increased amount of swelling when acid is added corresponds to the increased swelling of a cell or tissue when this is edematous. Technically put, we say that the colloids of protoplasm have normally a certain hydration capacity, and that when the tissues have become edematous their colloids have assumed a state of increased hydration. Just as acids bring about an increased hydration capacity of fibrin, so also does their abnormal production or accumulation in the body increase here the hydration capacity of the body colloids. Not only can it be shown that every such abnormal production or accumulation of acid in the body is followed by an edema, but, conversely, it can be shown that every case of edema gives evidence of such an abnormal production or accumulation of acid. What are listed as "causes" of edema (heart disease, arteriosclerosis, respiratory disease, anemia, intoxica-

tion, and infections of various kinds, etc.)—all have in common this point, that they are means by which an abnormal production or accumulation of acid in a part or all of the body may be brought about.

But acids are not the only substances which can increase the hydration capacity of a protein colloid or of a tissue, though it seems at present that they are the most important. The alkalies do this also. But more interesting is the fact that urea, pyridin, and certain amines are also able to do this. Urea and urea-like substances tend to accumulate in the body in certain types of kidney disease, and many of the toxins of the infectious diseases are amines. The edemas encountered in these clinical conditions may, therefore, be in part accounted for through the presence of this second class of substance in some or all of the tissues of the body, in addition to the presence of acids.

#### V THE STATE OF THE WATER IN THE BODY

But not only do all the tissues of the body hold their normal or abnormal amounts of water as hydration water in combination with the body colloids, but the liquids of the body, such as the blood and lymph, do this also. In other words, *there is in our bodies no "free" water analogous to the water we drink.* It exists in all the tissues and body fluids only in combination (as water of hydration). When any free water appears in the body, it is quickly removed by one of the secretory organs, such as the kidney. Conversely, it is impossible to get any secretion except as we furnish the secreting organ free water. To apply this to the kidney, we may say that we will get a secretion of "urine" only in proportion to the amount of water given the patient to drink.

#### VI DIURESIS AND DIURETICS

Water is, in other words, the only true diuretic. What then do we mean when we speak of a diuretic substance or drug? A diuretic is any substance which aids in furnishing a working kidney free water, or which helps to maintain in a kidney the necessary conditions, such as oxygen supply, etc., that are needed to permit the kidney to do its work. Urinary secretion may fail, either because we furnish no free water or because a kidney is not given the proper conditions under which it may do its work.

The intravenous injection of any amount of blood, blood serum, or a hydrophilic colloid in which all the water is bound to the colloid, is followed by no increase in urinary secretion. This

is because no free water is given. The same amount of water when given free, as in the form of a saline solution, is followed by a prompt increase in urinary flow.

When equal amounts of sodium chlorid solution are injected, we get increasingly greater amounts of urine, with progressive increase in concentration of the salt. This is because the salt dehydrates the body tissues, and the free water thus obtained is added to that which is being injected. The salt owes its diuretic action, therefore, primarily, not to any effect upon the kidney, but to its action in dehydrating the colloids of the whole body.

When equal amounts of equally concentrated solutions of different salts are injected, it is found that the order in which they produce diuresis is the same as the order in which they dehydrate (protein) colloids. Thus, in a series of chlorids, the metals arrange themselves in the following order, the one most powerful in producing diuresis being named last: potassium, sodium, magnesium, strontium, calcium. In a series of sodium salts, the acid radicals arrange themselves as follows: chlorid, nitrate, bromid, iodid, acetate, phosphate, sulphate. The greatest diuresis of all is produced by a salt which is made up of a powerfully dehydrating base with a powerfully dehydrating acid,—for example, magnesium sulphate.

The diuretic action of these different salts parallels completely their dehydrating effect upon (protein) colloids, a fact which again indicates that they owe their action primarily to their effect upon the body as a whole, acting as diuretics only as they furnish a working kidney free water.

To diuretics of a second order belong drugs like digitalis or caffein, which by their action on the heart and respiration assure a better oxygen supply to the kidney and the body tissues generally. Through improvement in oxygen supply to the kidney and the body tissues generally, the kidney is not only permitted to secrete the free water available for secretion, but improved oxygen supply permits oxidation of the various acids accumulated in the tissues of the body, and so the tissues yield free water, which becomes available for secretion. Whether we deal with normally hydrated or abnormally hydrated tissues, the effect is the same. Under the influence of "diuretics" an edema is decreased, not because the secretory organs of the body have been "stimulated" to pull water out of the tissues, but



because the "diuretics" act upon all the tissues of the body, decrease directly or indirectly their hydration capacity (lead to their shrinking, in other words), and the squeezed off water is then thrown off by the kidneys, bowel, skin, or lungs.

#### VII THE NATURE OF NEPHRITIS

After this general introduction regarding the nature of water absorption and secretion by protoplasm under physiological conditions and in states of edema, let us pass to the consideration of a specific organ, namely, the kidney, which under certain pathological conditions suffers changes of which edema constitutes an important part. In order to make my argument clear, let me begin by stating a general conclusion, and then adduce the evidence which justifies it.

I use the term "nephritis" in its generally accepted clinical meaning as covering that symptom complex which is characterized by the appearance of albumin in the urine, certain morphological changes in the kidneys, the associated production of casts, quantitative variations in the amount of urine secreted, quantitative variations in the amounts of dissolved substances secreted, etc.

In order not to confuse things, let us consider first such nephritides as follow, for example, a general intoxication of the kidney, in other words, the so-called generalized parenchymatous nephritis. Where belong the other types of nephritis, as, for example, the chronic interstitial type associated with a cardiac hypertrophy and high blood-pressure, we shall see later.

*All the changes that characterize nephritis are colloid-chemical in nature, and are produced through changes in the colloids making up the kidney. As of first importance in bringing about these colloid-chemical changes, I count an abnormal production or accumulation in the kidney of acids and of certain other substances which in their action upon colloids behave like acids.*

If this conclusion is correct, it must be demonstrable in three directions. First, we must be able to show that there is evidence in every case of nephritis of an abnormal production and accumulation of acids and similarly acting substances in the cells of the kidney. Second, we must be able to prove the converse, namely, that any method by which such an abnormal production and accumulation may be brought about results in the signs and symptoms characteristic of nephritis. Third, if we succeed in analyzing correctly, in the terms of colloid chemistry, the changes which are characteristic of what clinical-

ly we call nephritis, we should be able to do something to relieve these clinical signs and symptoms or, better, prevent their development. This last statement takes us into the heart of the problem of treatment which we shall in consequence consider last.

#### VIII EVIDENCE FOR THE ABNORMAL PRODUCTION AND ACCUMULATION OF ACIDS AND LIKE SUBSTANCES IN THE KIDNEY

What evidence have we, first of all, to show that in every case of nephritis there is evidence of an abnormal production or accumulation of acid, and similarly acting substances in the tissues composing the kidney? Proofs for this may be brought from three directions: first, when the urine is analyzed it is found that its acidity (whether measured by the old method of titration or in the more modern terms of the hydrogen-ion acidity) is always high; second, as even the older clinical students of the problem knew, the so-called alkalinity of the blood is reduced. These things already justify the conclusion that that which lies between the blood and the urine, namely the kidney, must show an abnormally high acid content. But proof for this may be brought directly. Certain dyes, for instance, may be introduced into the kidney which will show color only when a certain degree of acidity is reached. Such dyes do not stain a normal kidney, but when a kidney has been rendered nephritic it takes up the stain readily.

#### IX EVIDENCE THAT SUCH ACCUMULATION IS FOLLOWED BY NEPHRITIS

The converse of the above statement, namely, that any scheme which results in an abnormal production and accumulation of acid in the cells of the kidney is followed by the signs and symptoms of nephritis, is of great importance in our everyday clinical work, because what we call the causes of nephritis are, as we shall see, only such things as lead to an abnormal production and accumulation of acid and like substances in the kidney. Since we shall, in discussing treatment, find ourselves under the necessity of recognizing and removing as many of such features as we can, it behooves us to get them clearly in mind.

The quickest way in which to increase the acid content of the kidney is to inject acid intravenously. When we do this, we find that the animal thus experimented upon begins to show a decrease in urinary output, which may go to the

point of complete suppression, while such urine as is secreted is not only highly acid, but is charged with albumin, blood, and casts. At the same time, the animal begins to retain the water that we are injecting along with the acid, and so develops a generalized edema. In other words, the animal shows all the signs and symptoms of a so-called parenchymatous nephritis.

Some of you will feel like interposing at this point that this is all very good from an experimental point of view, but that it has nothing to do with the practical problems of every-day medicine. Let me assure you, therefore, that it has. As you know, we produce, even normally, enormous quantities of acids in our bodies in the course of our ordinary metabolism. The amount and rate of production of this acid can, however, be greatly increased at will. Whenever our muscles contract, they do so by reason of a production of acids (chiefly lactic acid) in them. When we exercise quietly, the oxidation of these acids follows rapidly, so they never accumulate to any extent in the muscles. But suppose, as in athletic endeavors of various sorts (rowing, running, basket-ball matches, etc.), we increase the rate at which the acid is produced. Our respiration and circulation then become accelerated in the effort to supply us with sufficient oxygen to oxidize the increased amount of acid thus produced. But when we work our muscles to the point of dyspnea, it means that in spite of the increased cardiac and respiratory activity we are no longer succeeding in this attempt. The lactic acid, therefore, spills over from the muscles into the general circulation, and by this is carried to the kidney. Under these circumstances we might expect to find albumin and casts in the urine. Perhaps you think that such hard athletic games occasionally yield a little albumin. It will interest you to know that they do yield, not a little, but a great deal. After hard athletic endeavors, athletes may show several grams of albumin to the liter, and such quantities of casts as we see ordinarily only in examining the urines from acute nephritis.

Now, the real reason why the athlete shows albumin and casts is because his respiratory and cardiac activity are inadequate, during the times of great acid-production in the body, to furnish sufficient oxygen to oxidize the acid as formed. But, as I stated before, we need a good circulation and respiration even to oxidize those quantities of acids which are produced when the organism is in a state of comparative rest. This

explains why, when the circulation becomes embarrassed (as in heart disease) or when the respiration becomes interfered with (as from a pleurisy with effusion) that the acid accumulation in the body mounts, and as this acid accumulation makes itself felt in the kidney, albumin and casts appear in the urine.

But, even if we do not interfere with the heart's activity or the respiratory activity, but interfere with the oxygen-carrying power of the blood, as through anemia or carbon monoxid poisoning, we shall then also get this disproportion between the rate of acid production in the body and its proper oxidation, which, again, results in an abnormal accumulation of acid in the kidney, and therefore in the albuminuria and casts so common in these conditions. A lowering of body-temperature as incident to exposure to great cold also brings this result about.

You will observe that I have thus far spoken of conditions leading to nephritis which, in the main, lie entirely outside of the kidney. I emphasize this because all such extrarenal factors must be discovered, and removed as far as possible whenever we try to discover the cause for, or to relieve the signs and symptoms of, this clinical entity. But any cause which will interfere, directly or indirectly, with the normal oxidation chemistry of the body cells, and which affects the kidney itself, will lead to the appearance of albumin and casts in the urine and to the morphological changes characteristic of nephritis in the kidney itself. It is for this reason that tumors pressing upon the afferent or efferent blood-vessels of the kidney, or an arteriosclerosis involving the whole or pieces of the kidney, a thrombosis, an embolism, or similar disturbances—all result in the appearance of albumin and casts in the urine. Or without interfering with the circulation of blood into or through the kidney directly, we may make it impossible for this organ to use the oxygen which is brought to it. We shall then again have an abnormal production and accumulation of acid in the kidney. Thus it comes about that we poison the kidney and produce a nephritis with the toxins of an infectious disease, with chloroform, ether, or alcohol, with arsenic, uranium, chromium, or lead, or with such substances as phosphorus or the nitrites.

#### X THE COLLOID-CHEMICAL CHANGES IN THE KIDNEY CHARACTERISTIC OF NEPHRITIS

The acids, and similarly acting substances, which in their action upon the kidney lead to the



various signs characteristic of this pathological condition, do so on the basis of the colloid constitution of the kidney about as follows:

The kidney is composed of a series of colloids. Those which interest us most and make up the bulk of the kidney are the protein colloids, and the general way in which they behave toward acids of various kinds has already been touched upon.

When such a protein colloid as fibrin is placed in a neutral solution (water) it swells somewhat. This is analogous to the normal state of the kidney. If a little acid is added to the water containing the fibrin, it swells much more. This is analogous to the enlargement of the kidney in nephritis (edema of the kidney). But at the same time that the fibrin swells in this way, it also tends to go into solution. This is analogous to the going into solution of the kidney substance in nephritis, in other words, to the albuminuria.

The grayness of the kidney cells in nephritis is due to the precipitation of a second protein colloid contained in the kidney cells. This second protein behaves like casein. Normally, this is "dissolved" in the kidney protoplasm through the presence of alkali. Under the influence of an abnormal production of acid in the kidney, it is precipitated. The precipitation of this colloid with the swelling of the other gives the combination long familiar to the pathologists as "cloudy swelling."

Under the influence of a little acid, the kidney falls apart into its morphological constituents. The epithelial cells stick together and loosen in mass as the cement substances that bind the kidney structures together "dissolve." This marks the origin of the epithelial cast. By more prolonged action of the acid, or with a rise in its concentration, the epithelial casts are converted into granular casts, and later still into hyaline casts. The hyaline casts can be reconverted into granular casts by neutralizing the acid or by adding various salts to a given concentration of acid.

The process of the secretion of water by the kidney is made up of two parts; first, an absorption of water from the blood by the kidney; second, a giving off of this same water into the uriniferous tubules. The available experimental facts can be most readily interpreted by regarding the former as a process of water-absorption by the kidney colloids, and the second as a loss of water by these same colloids. The absorption half of this reversible reaction seems to be con-

trolled by the production of carbon dioxide in the kidney cells, while the loss of this same carbon dioxide to the blood permits the subsequent loss of the absorbed water out into the uriniferous tubules. The presence of acid in the kidneys interferes with this play, and so with water-secretion. A second reason for a failure of the nephritic kidney to secrete its usual amount of water lies in changes present in the body as a whole, whereby the body comes to hold on to water in such a way that none is left over as "free" water to be secreted, as already discussed.

The absolute decrease in the amount of dissolved substances secreted by the nephritic kidney is secondary to the absolute decrease in the amount of water secreted, for the secretion of any dissolved substance is secondary to the secretion of water. The water washes the dissolved substances out of the kidney cells as it flows down the uriniferous tubules. The reason why the proportion of the various urinary constituents to each other is changed in nephritis, is due to the fact that the *absorption* properties of the kidney colloids are changed through the presence of an acid, and so the kidney cells not only absorb the various urinary constituents in a different proportion from the blood, but these are also washed out of the cells after adsorption in proportions different from the normal.<sup>1</sup>

#### XI CLASSIFICATION OF THE NEPHRITIDES

What has been said covers the essential elements of that which constitutes the picture of what we commonly call acute or generalized parenchymatous nephritis. But we know that there exist also chronic types of nephritis, and that in some of these we observe high blood-pressure, cardiac hypertrophy, etc.

This brings us to the matter of the classification of the nephritides.

*There is really only one type of nephritis.—parenchymatous nephritis.* There is, however, a difference in the *amount* of kidney substance that may be involved. It is well to distinguish between *generalized* and *focal* nephritis. It is in the generalized type that we observe the greatest decrease in urinary output, the most highly concentrated and most highly acid urine, the greatest amount of albumin, and the largest number of casts. When only smaller parts of the kidney are involved, all these signs are proportionately

<sup>1</sup>The "fatty changes" observed in nephritis are not touched upon here. "Fatty degeneration" is also a colloid-chemical problem, as Marian O. Hooker and I have recently shown. See "Science," xliii, 468 (1916), as well as the current numbers of the *Kolloid-Zeitschrift*.



less. The first type of nephritis is found in cases of general intoxication, as in scarlet fever or in carbon monoxid poisoning, after an anesthetic, or in the more chronic types of poisoning, as with phosphorus, chromium, or lead. If larger or smaller pieces of a kidney thus affected die, and the defect is replaced by connective tissue, the kidney substance is reduced in amount, and we find on autopsy the so-called *secondarily contracted kidneys*,—one type, in other words, of the so-called chronic interstitial nephritis. As long as one-fourth of the total kidney substance which a normal animal has is left intact, the animal, or patient, may be unaware of the fact that he has kidney disease, for even less than this amount is adequate for all ordinary demands. Neither does such an animal, or patient, show any increased blood-pressure, cardiac hypertrophy, uremia, or any other of the alleged consequences of kidney disease. He may live and die without being aware of his kidney condition, and we have at the present no way of diagnosing such a state before death.

In the commoner types of chronic interstitial nephritis which we find in association with blood-vessel disease, heart-hypertrophy, and high blood-pressure (the so-called *primarily contracted kidney*), we also deal with a gradually progressing focal destruction of kidney substance. The primary change in this condition is not kidney disease, however, but *blood-vessel disease*; and the general signs observable in such a patient are, primarily, not due to defective elimination of poison through the partially destroyed kidneys, but to the effect of the vascular disease itself in the different organs of the body. The heart-hypertrophy and the high blood-pressure are nature's method of meeting the consequences of the vascular disease. In consequence of the changes in the blood-vessels, one fragment after another of the kidney may be destroyed, and replaced by connective tissue, but between these spots the kidney is largely normal; and so the decreased urinary output, the albuminuria, the casts, etc., may be largely, or entirely, absent in these patients, at least in the earlier stages of their disease.

While infections of the kidney are not ordinarily classed with the true nephritides, they might as well be. The kidneys here show the same changes, and die in the same way, as when a poison affects a whole or any part of the kidney. An infection involving the whole kidney (general intoxication) shows much albumin, many casts, and a small water output. When

the infected spots are small, as in the early stages of renal tuberculosis, these findings are also less intense. And since blood-vessel disease does not usually go with the ordinary infections, high blood-pressure and cardiac hypertrophy are usually absent in these cases of kidney infection.

## XII ON THE TREATMENT OF NEPHRITIS

These remarks will suffice to indicate why I have formulated the general rule for the prophylaxis and treatment of nephritis in the following terms: As far as possible, *avoid, remove, and combat every condition that favors the abnormal production or accumulation of acids and like-acting substances in the kidney*. Evidently, the pathological condition of the patient must be taken into consideration in the application of this rule. An anesthetic nephritis, for example, with suppression of urine, will call for a more aggressive therapy than a nephritis secondary to a slowly progressing arteriosclerosis. If we succeed in getting the first nephritic over his immediate kidney symptoms, we may make a hopeful prognosis; for, when he has exhaled his anesthetic, he has rid himself of the condition that was responsible for the abnormal acid content of his kidneys. But in the case of the second nephritic, so hopeful a prognosis cannot be made; for, while we may also benefit him, he continues to carry the original condition (his arteriosclerosis) that brought him to us, even after we have treated him.

My rule for the treatment of the threatened or established case of nephritis may be summarized in these words: *give alkali, salts, and water*. The reasons in brief are as follows: the alkali is given in order to neutralize the acid present in abnormal amount in the kidney and in the other edematous organs of the body; the salts are indicated (sodium chlorid is no exception) because the various changes induced in the kidney colloids by acids are counteracted by adding to such acid any salt, even a neutral salt; we need to give water in order to have more of it present in the body than is necessary to saturate all the body colloids, otherwise we shall have no "free" water left for the secretion of urine.

For exact details as to how such a scheme of treatment is to be used,—and only its proper use will give satisfactory results,—the reader must be referred to a longer discussion than is here possible.<sup>1</sup>

<sup>1</sup>See my book "Oedema and Nephritis," second edition, pages 537 to 644, published by John Wiley and Sons, New York, 1915.

It is advantageous to add to the alkali, salt, and water therapy already discussed, an active administration of sugar, dextrose (chemically pure, anhydrous glucose), either by rectum or intravenously. Or dextrose, or some dissaccharid, or starch may be given by mouth, if the patient is able to take food, or is not vomiting. The reasons for giving sugar are two: first, the older, well-recognized one, that carbohydrate starvation is very common and a potent cause of "acidosis"; and, second, because sugar, which is comparatively ineffective in reducing an excessive hydration of protein when induced through an accumulation of acid, is very effective in reducing the hydration produced by other means, while the salts, which are very effective in reducing an acid hydration, largely fail when the hydration is produced by other means. As we wish to combat all the possible causes of the hydration at once, we give besides the alkali both salt and sugar.<sup>1</sup>

#### XIII ON THE ALLEGED CONSEQUENCES OF KIDNEY DISEASE

A final word is necessary regarding the alleged consequences of kidney disease. It is generally urged that the generalized edema, the "uremia," etc., of a patient, is secondary to the kidney disease. This is in the main incorrect; for nephrectomized animals develop either no edema at all or only a very slight one, as compared with the edema developed, for instance, after the injection of uranium nitrate. Neither do they die with signs or symptoms which clinically we call "uremia," even though they live many days. But when we give an animal a "kidney poison" of some sort, such as uranium, it develops an edema in the course of a few hours, which at the end of about two days may have increased to represent fifty per cent of the original body-weight of the animal. This means only one thing,—that *what we call the consequences of kidney disease are not consequences, but are the same thing as the kidney disease manifested in the different organs of the body*, and all due to the same poison which originally produced the kidney change. The headache, stupor, coma, and convulsions of "uremia" are due, in the main, to an edema of the brain, the changes in sight to an edema of the optic nerve or retina, the vomiting to an edema of the medulla, and the generalized edema to a swelling of the body tissues gener-

ally, all induced through the same poison circulating through the body and responsible for the edema of the kidney (nephritis).

What relation does the "uremia" of chronic kidney disease associated with cardiac hypertrophy, high blood-pressure, etc., bear to the uremia just discussed? Is it due to retained poisons which the kidney has failed to excrete? Not in the main. This "uremia" is also an edema of the brain, but is induced this time through the defective blood-supply to the brain brought about through vascular disease. These "uremic" attacks are periodic edemas, and are analogous to the periodic glaucomatous attacks (edemas of the eyeball) to which these same patients are liable.

#### XIV REMARKS ON VASCULAR DISEASE

These facts will serve to emphasize why, in treating our patients with chronic interstitial nephritis, we need from now on to pay more attention to the primary vascular disease and to its relief than has thus far been our custom. We must stop treating the kidneys as something primary, and the high blood-pressure, cardiac hypertrophy, etc., as things bad in themselves, which they are not. We must do everything in our power to stop the progress of the blood-vessel disease itself. And this raises the question of the cause for the pathological changes in the blood-vessels. Everything has been named as a cause of blood-vessel disease, though that any of the things are really concerned can hardly be said to have been proved. However bad alcohol, gastro-intestinal poisons, etc., may be for an established vascular disease, this is not synonymous with saying that they cause it. Whenever a general intoxication strikes an organ, that organ is usually affected fairly uniformly, and so we should expect that if any general poison were responsible for vascular disease, all parts of a blood-vessel, say all the media or all the intima, would be uniformly involved; but it is characteristic of vascular disease that it appears in spots. There must, therefore, exist for it a spotty cause, and not such a general cause as a generalized intoxication.

It is characteristic of micro-organisms producing thrombotic changes in the smaller blood-vessels to give rise to such spotty destructive lesions. In any case of vascular disease careful search should, therefore, be made for possible infections. Of first importance, no doubt, stands

<sup>1</sup>Under no circumstances are alkali and sugar ever to be boiled together or mixed and kept in stock. They are best given at separate times, or are not mixed until the very moment that they are to be administered.



syphilis. In cases where such a cause could be shut out with a fair degree of certainty, I have looked for infected tonsils, infected teeth, infected ears, infected antra, infected pelvic organs, and old genito-urinary infections as possible sources of microbic infection of the blood-stream with thrombotic changes in the smaller capillaries of the parenchymatous organs and in the vasa-

vasorum of the larger blood-vessels; and it has seemed to me that through removal of such chronic foci of infection from accessible regions, together with a scheme of living directed toward building up the natural resistance of the body to infection, greater relief was assured patients with cardiovascular-renal disease than by our older methods.

## MEDICINE AND THE STATE\*

BY CORNELIUS WILLIAMS, M. D.

ST. PAUL, MINN.

It is axiomatic that the highest duty of the State is the conservation of the health of its citizens. The writer offers the postulate that the State has in this particular failed in its duty to the citizen. The object of this paper is briefly to deal with the problem of the conservation of the health of the people, and much that is comprehended by that work.

In treating the question of how best to procure a better condition or state of health of the people it is as well to take up at once the question of what is the proper preparedness of the physician class, and to consider the responsibility of that class. It is most pertinent to inquire if the physicians of the state today are as well fitted as they should be to take charge of the duties devolving upon them as the self-constituted guardians of the health of the people. If this question should be put to you or me today, what would the answer be? It would needs be "No." "Look about you. Look into yourself!" Do you find yourself to be all that you should be as a physician? Do you find your confreres to be what the people have a right to demand? I do not venture when I assume that the answer must be "No." Now to come short to the point, the duty of the State is to require of every physician the highest possible attainment of knowledge and skill in the application of that knowledge. It is not possible that every man can be a competent physician, or for every one to acquire the highest attainment of knowledge or skill. Hence, should the State step in, select a class of promising youth, educate that class, of both sexes, if you will, prepare them with every possible effort, prepare them in the highest and most comprehensive sense of the word, take them bodily in charge, school them, educate them, make them

the best men and women of any class in the state, give them all possible educational facility, so that they may be fitted for the highest office of the State, the office of physician-in-ordinary to the people of the state. Primarily, it follows that these candidates must pass a mental and physical examination before they enter upon the threshold of preparation for their future career. Today the professional soldier and sailor is the object of extreme care, and the selection and the outfitting of the fighting man for the duty which is to be his as a defender of the country as against any foe occupies a large part in State economy. How much higher then is the duty of fitting men and women to care for the lives which the nation holds in its hand! After the candidate for physician has passed the most crucial probe which the most able examiners of the country can impose, and after his initial preparation, he is then ready to enter upon the study of medicine. Then the study of the art and the science of medicine in every branch and ramification is to be taken up methodically and systematically, and with the energy and earnestness which alone will make of this candidate a successful graduate.

It goes without saying that, while there are classes studying to become physicians, there must be other classes studying to teach the art and science of medicine to the student. The physician to the people of the state should have no other care upon his mind than that which is involved in the performance of his duty as a medical officer of the State. He would, of course, be housed, clothed, and fed by the State, and paid by the State a fitting wage for his services. The people, on the other hand, would not only receive without charge the services of the physician class, but would be furnished medicine and appliances needed for their treatment, the sick

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.



would be housed and cared for by the State until well and able to go about their ordinary duties with safety, or would be cared for at home as might be considered best.

Not the least of the benefits to accrue to the community from the establishment of a bureau of State medicine, would be the standardization of medical practice. There would be no imposition of incompetent, ignorant sects, professing dangerous cults, which today is responsible for the loss of hundreds of thousands of valuable lives every year. There would then be no inducement for the people to incline to such practices, or to encourage the growth of strange scisms. All of this would imply simple, yet infinite, detail not necessary to be gone into here, but sufficiently indicated by the giving of the first terms of the scheme. It is needless to say that the care of the public health would begin in the regulation of the life of the citizen without any limitation of his liberty. He would, however, be required to accept the regulation of his daily life which the rules of scientific health-conservation would demand. Under governmental surveillance with the State authority, such diseases as typhoid fever, diphtheria, smallpox, the venereal scourge, tuberculosis, and, in fact, all of the infective diseases of any kind or character would absolutely disappear from the land, and then we would begin to know what life really means to the liver. It is reasonable to suppose that the alteration in all of the bodily functions, including that of cerebration, would be very much modified, improved, and made natural by the elimination of the various toxins which now form a part of the blood and the tissues as a result of long-continued saturation with disease germs and antibodies.

The time is not far distant when the people of the United States will look back upon this dark period that has preceded the era of State medicine, as one of the most extraordinary epochs in the history of the nation or, indeed, of the world,—that dark period during which the untutored minds of neglected citizens were allowed their full vent of suicidal freedom. I know of no more cogent reason for the installation of the régime of life-preservation on the part of the State than this long, long period of life destruction with the consent of the State. A state has no more right to waste the lives of the State's citizens than it has to waste any other material resource belonging to the people and the State. In fact, rational paternalism grown to the last proportion

is the ideal which those who would better the human race must aim at, and shall attain. Philanthropy, in its most catholic sense, means something of the kind of people betterment that shall comprehend every phase of the intention in any other manner than under the direct auspices of the State. All of this does not mean a lessening of personal liberty, but means a greater scope of beneficent government. The idea of personal liberty when the exercise of unlimited freedom of action forms a menace to the community, and to the race, is insanity, pure and simple. Every unit in the community owes, first, a duty to the State, and, second, a duty to his community, and, third, to himself; and the greater of these duties, that to the State, embraces all of the lesser ones. It might well come about that Hugh Conway's conception of communal living shall be fulfilled to the letter. All nations today, because of the world war now being waged, are facing a problem, the solution of which cannot be best accomplished, if, indeed, accomplished at all, except by State action. Within the period of a year it is estimated that some ten millions of young men have been practically destroyed, so far as their usefulness as citizens is concerned. The world is not rich enough in young men to permit such a waste of life and loss of potential increase of population without suffering an almost irreparable loss of physical resources. It is a matter of a most interesting speculation as to what the course of Germany and France, particularly, will be after the end of the war. Supposing that the war should continue for two years more, there would be a loss of certainly thirty millions of husbands, and a condition of thirty millions of widows and spinsters in the two lands alone,—an appalling misfortune and an almost inconceivable calamity. That the government in those countries is even now formulating some plan for healing this terrible wound goes without saying; and in Germany at least we may be assured that the remedy will be most radical, and in France and elsewhere it must be of the same nature. The idea suggests itself that the power or powers which shall eventually prevail by an overwhelming victory may decide to appropriate the prisoners held, and invite those prisoners to become citizens of the winning State. Such invitation might be couched in such terms that an acceptance would be much accelerated, if not made actually obligatory. Strange things have happened in the world, and will happen again. The result would be a penalty paid by the loser, perhaps,

without parallel as to the kind and extent, and double-edged in its action. When one thinks of such a plan the idea grows upon one that the right of a winning nation not only to adopt its enforced citizens, but to take back its own people is entirely within the rights of war, and such an indemnity is nothing more than the production of the usages of indemnity as practiced today.

If war must be waged then peace must be conquered on the terms of war. The presentation of a governmental endowed wife, and a homestead might soften the hardship of the adoption of the new citizenship.

This discussion, while germane to State medicine, is still a slight digression. It is the writer's intention to procure the introduction of a bill along the lines of State medicine as here sketched both in Congress and the State Legislature at its next session. It may, indeed, be years before the results are accomplished that are aimed at in this movement, but there must come a day of final success. Many of those who are here today will have passed away before that which seems to them, perhaps, a utopian plan is accomplished, yet it can be done, it shall be done, and the sooner it were done by far the better. It will have occurred to you that under the plan suggested a great many young men and women may be taken, and but few chosen. I believe that those who will have conduct of this taking and choosing

will find a use for every individual selected and educated, because there would be different things to be done, and, necessarily, persons with diverse qualifications would be required for the work.

Now, the proposition is, that the State shall take over the profession of medicine, and institute a department of medicine and create an army of State physicians; that the State shall select capable subjects for education for the medical profession; the State shall from the very beginning pay such wage to such persons as may be fit, and make physicians of them, make the best of them that can be made, and by the best methods known; that the State shall take over absolutely all departments of public health, hygiene, the prevention of disease, treatment of disease, and entirely the matter of the medical care of all of its citizens, and that it shall begin this duty to the people both as to those who now are living and to those who are to come after.

As I have said, the scheme is one of infinite detail, and can only be outlined by suggestion here, but is capable of working out into a most symmetrical whole, but it needs a reversion of the methods of today. It means the strong hand of the State, it means a grand world work, it means that this great State of the United States of America should be the pioneer in the work, and the first beneficiary.

## A VISIT TO THE MAYO CLINIC

By JAMES E. MOORE, M. D.

MINNEAPOLIS

My first visit to the Mayos was in 1886, two years before St. Mary's Hospital was established. I have visited them many, many times since, always with pleasure and profit. In '86 the chief topic of conversation among medical men was technic; and, having just returned from Germany, where I was supposed to have learned the very latest, "Will" (Charles did not graduate until 1888) naturally began to pump me dry. In two days I was asked more questions by that ambitious youngster than a whole medical class could ask in the same length of time.

The best idea of what I have seen during the past two days can doubtless be gained by brief comments upon a few of the cases.

### DR. W. J. MAYO'S CLINIC

CASE 1.—A large chronic duodenal ulcer from which the patient had suffered repeated exacerbations of the

usual symptoms of duodenal ulcer, followed by long periods of good health, and ending finally in pyloric obstruction and gastric dilatation with their usual symptoms. The study of this case was of special interest because all of the findings, both clinical and laboratory, were in absolute accord, so that an unquestionable diagnosis could be made. A posterior gastro-enterostomy was made, catgut sutures being used throughout. The opening in the stomach was made well toward the cardiac end, and a small portion of the stomach left protruding through the opening in the gastrocolic omentum, so that the edges of the opening could be stitched to the walls of the stomach, leaving the anastomosis entirely within the greater peritoneal cavity.

CASE 2.—Resection of the right colon for intestinal stasis. This patient had been suffering from joint lesions for several years. She had had her tonsils removed and her teeth cared for, without relief. She had cecum mobile, chronic appendicitis with a very large enterolith, and a Jackson's veil, and suffered greatly from constipation. The ileum was cut across a short distance from the cecum, and one-half of a Murphy



button placed in the proximal end. The cecum and colon were then freed up to the point where the attachment of the omentum begins on the right side, the operator emphasizing the importance of preserving the omentum to prevent intestinal obstruction. A rubber-covered clamp was applied to the colon about three inches distal to the proposed section. The bowel was then cut across, the other half of the Murphy button placed inside of the bowel, and the end of the bowel closed with several rows of sutures. The half-button which was free in the section of bowel between the clamp and the closed end, was manipulated so that the open end impinged upon the longitudinal band of the gut, a small incision was made in the bowel, and the neck of the button was forced through the opening. Without any purse-string around that part of the button in the colon, the two halves of the button were properly approximated. The anastomosis was made a short distance distal to the closed end of the colon, leaving a small artificial cecum. The operator stated that he used the button because there was less danger of subsequent stenosis and adhesions when it was used than when the suture method was employed. The button was re-inforced by a few interrupted catgut sutures.

I examined the specimen carefully, and could find no pathology. The mucosa had a perfectly normal appearance, and Dr. McCarty stated that he had examined every cecum removed in the Clinic for stasis, and had never found any pathology. Dr. Mayo stated that he was not prepared to recommend the operation, as he had only performed thirty partial colectomies for stasis, and, although these patients have all been temporarily improved and their constipation entirely relieved, it is too soon to decide that the improvement is permanent. He feels justified in performing the operation because he has performed it hundreds of times for other conditions with a mortality of but three per cent. He was not certain but that this patient would have experienced just as much relief had he removed only the inflamed appendix with its large enterolith.

#### DR. C. H. MAYO'S CLINIC

CASE 1.—A case of Hirschsprung's disease in a ten-year-old girl. The sigmoid and rectum were greatly distended, and covered with black spots. These spots were not hardened so as to suggest ulceration of the mucosa, but were in the walls of the gut, and were believed to be either hemorrhages or pigmented glands. The ileum was cut across a few inches from the cecum, and the proximal end anastomosed with the rectum. The ileum was cut obliquely to make a larger opening. The colon was left to be removed at a later operation when the patient is in better condition. The anastomosis was necessarily made in the distended bowel, but was believed to be safe because a tube could be introduced through the anus up to the point of anastomosis.

Dr. Mayo stated that at the second operation he expects to cut across the distended bowel a few inches above the anastomosis and to bring the sutured end of the bowel into the abdominal wound, so that, in case there should be leakage on account of the abnormal condition of the bowel, it would take place outside of the peritoneal cavity.

CASE 2.—This patient had been operated upon elsewhere on a diagnosis of gall-stones. No gall-stones

were found, and a cholecystotomy was performed, which left her with a biliary fistula. She was still suffering some pain in the right side that she had had before her first operation. Skiagraphs showed stone in the right kidney. The gall-bladder was removed for the relief of the biliary fistula, and did not show sufficient evidence of disease to have justified the original operation, so that the chances are that the stone in the kidney was the source of her suffering and that her original operation was based entirely upon a mistaken diagnosis. The kidney stone was left for a subsequent operation.

#### DR. JUDD'S CLINIC

CASE 1.—This patient was sixty-eight years of age, and had been suffering some time from an enlarged prostate. After the necessary preliminary treatment he was brought to operation. The operator stated that he employed the suprapubic operation in all prostatic cases. In this instance the prostate was removed in three minutes from the time of the beginning of the operation. The patient being in the Trendelenberg position, retractors were introduced into the wound, so that the pocket made by the removal of the prostate could be seen. A curved, round-pointed needle threaded with catgut was used, and three or four interrupted sutures applied by introducing the needle into the mucous membrane at the margin of the wound and taking a bite in the capsule of the prostate, which surrounded the cavity, after which the wound could be seen to be perfectly dry.

Dr. Judd stated that he had been employing this technic for some time, and the results were eminently satisfactory. He found that when he used packing to control the hemorrhage the patients complained of a great deal of pain in the rectum, and that the packing was sometimes difficult to remove.

CASE 2.—This patient was one upon whom operation had been performed some time before for carcinoma of the cervix uteri, the Percy method of cauterization being employed. At this second operation the remains of the uterus were removed, and no evidences of carcinoma were found. The uterus was long and narrow, and about the size of two fingers. Some small nodules were noticed in the peritoneum, and a section was sent to the laboratory, from which a prompt diagnosis of tuberculosis was made. This was an interesting clinical fact, inasmuch as these two grave conditions, of cancer and tuberculosis, are so rarely found in the same patient.

It is believed that this woman may be cured of her cancer, and that this operation will relieve her of beginning tubercular peritonitis, because, as every surgeon knows, operation, per se, oftentimes seems to cure this condition.

#### DR. BECKMAN'S CLINIC

In Dr. Beckman's clinic I saw operations too numerous to mention, the most important one of which was removal of the Gasserian ganglion. This operation, always a difficult one, was particularly trying on account of the persistent venous oozing which interfered with the operator's work. The ganglion, however, was eventually removed from within outward. The hemorrhage was controlled by a small pledget of cotton saturated in adrenalin.



## DR. HENDERSON'S CLINIC

CASE 1.—This was a resection of the knee for tuberculosis, in an adult patient. The operation was performed without the application of a tourniquet; and although there was considerable hemorrhage from the articular branches, it was not enough to interfere with the patient's welfare. The ends of the femur and tibia were quickly exposed, and sawed off in such a manner as to cause slight flexion. The interesting part of the operation to me was, that no effort was made to remove every portion of the soft tissues involved in the disease, as has always been my practice. The operator stated, however, that his experience in performing the operation as he did this one has proved satisfactory. This being true, it certainly simplifies the operation very materially, because most of the time ordinarily consumed in this operation is spent in removing the soft tissues. The late Dr. Phelps of New York used to pride himself upon performing resection of the knee in thirty minutes, so that his technic must have been the same as Dr. Henderson's. After the adjustment of the bones it was found that there was a persistent tendency to subluxation of the tibia backward; therefore a small incision was made over the upper end of the tibia, through which a very large nail was driven extending up through the sawn surface of the tibia into the outer condyle of the

femur, which prevented the tendency to subluxation. The end of this nail was left projecting through the integument, and is to be removed in a few days. The operation was completed by chromic catgut sutures in the capsule of the joint and the usual sutures externally.

CASE 2.—This patient was a man suffering from extreme bowlegs. A wedge-shaped piece was removed from the tibia in its upper third, a saw being mostly employed. Osteotomy of the tibia and fibula was done in the lower third. The wounds were then closed. After making a short incision in the heel just below the tip of the malleolus, a strong spike was introduced and driven transversely through the os calcis, and, as it approached the opposite side, an incision was made over the point. The pin was then driven so that it extended out an equal distance from the inner and the outer side. To the ends of this pin was attached an instrument known as an "ice-tongs," from which extension was to be made over a pulley at the foot of the bed. A plaster cast was applied to the extremity. Dr. Henderson stated that this method of extension was more accurate than any other he had employed, because it not only made direct extension in line of the tibia, but prevented rotation.

## RUPTURE OF THE BLADDER, WITH REPORT OF TWO CASES\*

By E. P. QUAIN, M. D., F. A. C. S.

BISMARCK, NORTH DAKOTA

A solution of continuity in the wall of the urinary bladder is one of the most serious conditions a medical man may be called upon to diagnose and to treat. A failure to recognize promptly and to manage properly such an accident usually means death. A delay in such recognition and treatment will, in the most favorable cases, cause a prolongation of the convalescence over months or years, and a more or less permanent impairment of the patient's health and comfort. The seriousness of such injury depends, not on the damage to the bladder itself, but on the damage to the structures surrounding the bladder, into which the escaping urine may infiltrate and establish infection, necrosis, and sepsis.

Rupture of the bladder is due in the great majority of instances to an injury, the violence of which is applied to the lower abdomen or to the pelvis, more or less directly. The bladder has been known to rupture during labor at the point of a perforating bladder-tumor, and from an overdistention due to urethral stricture, enlarged prostate, or vesical irrigation; but these in-

stances are so rare that they deserve only a word of mention.

In looking over the reported cases one finds the principal traumatic causes to be as follows: a fall, ranging in height from the back of a horse to the elevation of a third-story window; a crushing injury under a wagon-wheel, between two wagons or cars, or between a wagon and a wall or similar immobile surface; the falling of heavy objects on the pelvic region; and a kick or sudden blow over an overfilled bladder. Railroad wrecks have furnished many instances of bladder-injury.

It has been found practical to classify all ruptures of the bladder anatomically into two groups: those which involve the peritoneum and those which do not,—that is, into the intraperitoneal and the extraperitoneal. Each variety has its own peculiar symptomatology and list of complications. Both varieties may be present at the same time.

A definite diagnosis of ruptured bladder is often quite difficult at the time when such diagnosis is of the greatest importance to the patient,—that is, immediately after the accident. Later, anuria, peritonitis, and urinary infiltration may

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force the diagnosis subconsciously into plain view; but then the patient is already dying, or, at least, is condemned to months or years of misery.

Acute alcoholism has been the strong contributing factor in a very high percentage of cases. In such patients the diagnosis is especially difficult, because the history may be unreliable and also because neither pain nor shock is readily perceived through a nervous system soaked in whiskey.

The two most constant symptoms of bladder-rupture whether intraperitoneal or extraperitoneal are pain and hematuria following a definite, severe injury to the lower abdomen or pelvis; but these two symptoms vary greatly in their manifestations. In a typical case the patient usually suffers immediate, intense and continuous pain through the pelvic region and lower abdomen. There may be an early collapse and even death from shock. A constant desire to urinate is present, but only small amounts of bloody urine can be forced out. Sometimes clots may plug the urethra entirely. In some recorded cases there has been a considerable amount of fairly clear urine voided, probably due to a spastic contraction of the bladder, which for a time prevented hemorrhage and leakage.

The next evidence of ruptured bladder depends on the location of the rupture and of the escaping urine. Over two-thirds of the cases reported have been intraperitoneal. The bladder is rarely injured except when full and over-distended. A sudden tear, therefore, forces the urine into the abdomen in large quantity and further renal secretion increases the amount. Subjectively, this is shown by a progression of abdominal symptoms, like those of general progressive peritonitis. Objectively, we find a distended, hard abdomen, tympanites, free fluid extending up toward the flanks, and the rising pulse and temperature. Unless proper surgical procedures are put into action timely enough to control this peritonitis, the outcome is almost invariably and rapidly fatal.

If the tear in the bladder wall has been extraperitoneal the secondary symptoms are produced by the infiltration of the urine into the soft parts in front, below, and behind the bladder. The urine dissects itself readily through the loose areolar tissue, but follows the anatomical limits of ligaments and fasciæ. Thus the urine will fill the prevesical space under the recti, and

escape through the inguinal canals to distend the scrotum. If the tear is near the base of the bladder the extravasation fills the deeper perineal structures, dissects between the prostate capsule and the rectum, and may pass behind the peritoneum, even as high as the kidney. It may leave the pelvis through the femoral opening, or obturator foramen, and appear in the thigh. The trauma producing the rupture may have damaged other structures and tissues surrounding the bladder, so that the urine may be forced into new atypical regions, as, for instance, under the skin of the abdomen, hips, or thighs, or into the spaces between the fragments of fractured pelvic bones. Injury to the bladder from perforating bone-fragments after pelvic fracture is one of the most frequent causes of extraperitoneal rupture. An overfilled bladder may also rupture solely from a continuation of the force, which causes pelvic fracture with wide separation of bone-fragments, as seen in my own case.

Extraperitoneal infiltration of urine is shown by an adematous tumefaction of the part; the yellowish color of this swelling is said to be quite characteristic by those who have seen it repeatedly. A large amount of escaped urine may collect in the prevesical space, and appear like a distended bladder. It may separate the peritoneum from the muscles, and press upon it, causing abdominal pain and peritonismus, simulating intraperitoneal leakage. The insertion of a catheter into the bladder will demonstrate whether or not the tumor is due to a distended bladder.

A small amount of urine escaping into healthy tissues may absorb and cause no ill effect; but, with a tear in the bladder and the sphincter intact, there is a continuous pouring out of urine, and the water-logged tissues finally become irritated and lose their resistance, and the resulting infection, suppuration, and sloughing may go even farther than the urine infiltration itself. This produces a destruction of tissues, which, in many cases, means a serious physical impairment lasting for life. Early recognition and treatment should forestall these secondary complications.

Injuries to the deeper parts of the urethra are sometimes hard to differentiate from bladder-injury. Fortunately, there are several rather constant and characteristic symptoms of urethral laceration, namely: (1) history of falling astride a sharp edge; (2) continuous bleeding from the urethra, not depending especially on

efforts at urination, the amount varying from a small dribble to a severe hemorrhage; and in laceration of the membranous urethra the blood sometimes may run back into the bladder, but in such cases it is often possible to enter the bladder with a catheter to practice volumetric examination; (3) retention of urine is complete in about 75 per cent of urethral ruptures, while the remaining cases have a partial retention which becomes more and more pronounced; (4) there is usually local evidence of injury to the urethra in the perineum; (5) the catheter cannot be passed beyond a urethral laceration, except in rare instances.

The urine is bloody in case of rupture of the kidney, but the history of the injury, together with definite local pain and increasing swelling in the kidney region, and absence of pelvic disturbance, point readily to the source of the hematuria.

In adopting a plan for management in a case of suspected rupture of the bladder we cannot improve on the one laid down by Fuller (*Jour. of the A. M. A.*, vol. 63, p. 2114) from whom I quote:

When a case indicating bladder injury is seen promptly, the patient should be instructed to urinate. If he can do so naturally, and the urine is free from blood, the chance is that there has been no vesical injury, and expectant treatment, as far as the bladder is concerned, is warranted. If he cannot urinate, a sterile catheter should be passed. If no urine and no blood are thereby revealed, the probability of anuria due to shock is justified. The abdomen, however, should be carefully watched, and if, at the end of a brief interval, on a second introduction of the catheter no urine should be found, a measured amount of sterile normal saline solution should be injected into the bladder. If the volume injected is caught in the return flow, well and good. If not, the abdomen should be promptly opened and an intraperitoneal rent looked for and closed, if found. If there be no intraperitoneal injury, inspection should then be made to find if there exists any evidence intra-abdominally of extraperitoneal vesical injury.

The immediate closure of a rent in the bladder within the abdomen is imperative. It is best done with interrupted catgut sutures passed through the muscle, but not through the mucosa. The abdominal cavity should be mopped dry of all urine. Irrigation of the abdominal cavity with saline solution is not to be advised. An efficient bladder-drainage must be established either by a catheter in the urethra or a tube above the symphysis, the latter being the better method.

In extraperitoneal rupture, immediate treatment may not be so vital to the patient as in the intraperitoneal; but the earlier the treatment, the

fewer the complications, even in the mildest case of extravasation. Here, also, suprapubic cystostomy with drainage is the treatment of choice. An inspection of the bladder will demonstrate the place and character of laceration and a possible bone-fragment causing it. Most extraperitoneal ruptures are situated on the anterior wall, and the first and chief extravasation fills the pre-vesical space. This should be drained thoroughly by bluntly dissecting through the edematous tissues. With a drainage-tube in the bladder, this organ remains collapsed, which allows even large extraperitoneal tears to heal without any suture whatsoever in the bladder-wall. Tissues that have become infiltrated with urine should be incised deeply, and spread apart with blunt instruments. Such free and early incisions will prevent further infiltration and consequent necrosis.

It is to be remembered when catheterizing a case of suspected bladder-rupture that the catheter may slip through the laceration of the bladder, and a few pints or quarts of urine be withdrawn from the abdominal cavity. A large quantity of urine thus obtained by catheterization in the absence of visible or palpable bladder-distention, points positively to intraperitoneal rupture. (Lejars.)

The volumetric distention of the bladder should never be used unless one is prepared for immediate laparotomy, with the patient on the table and instruments sterile. It is evident that if there is a tear in the bladder, the addition of more fluid helps to spread the urine over the peritoneum. Confusing results are obtained when the tip of the catheter slips through the tear into the abdomen before the injection of fluid.

The first of my two experiences with bladder-rupture was fairly typical of the intra-abdominal variety, and illustrates, besides, some complications which may occur when proper treatment cannot begin within the first few hours after the accident.

#### CASE I

A farmer's daughter, 18 years old, of normal health and strong physique, was driving a header-box in the harvest field. A sudden windstorm upset the wagon, and the driver was thrown to the ground where she was struck "over the hips" by the wagon box. She immediately suffered excruciating abdominal pains, and fainted. The accident happened late in the afternoon, and she had not urinated since noon. She had a constant vesical tenesmus, but could not urinate. A physician called in the night found the bladder empty on catheterization. The patient came into my care forty-four hours after the accident. At the time the follow-



ing objective signs were found: frequent emesis; dry tongue; low delirium; painful, hard, and distended abdomen; temperature, 104°; pulse, 130; bladder containing a few drops of bloody urine (catheterization); free fluid in the abdomen. Diagnosis of intra-abdominal rupture of the bladder was made and laparotomy undertaken at once. There was no evidence of urinary extravasation outside the peritoneum, but the abdomen was filled with a black, bloody fluid, emitting a strong odor of urine. After mopping away the fluid a small laceration through the bladder-wall was found on its upper left peritoneal surface. This was sutured with two rows of formalized catgut through muscle and serosa, respectively, the bladder mucosa being turned into the bladder and not perforated with the suture. The intestinal serosa was acutely hyperemic, and showed numerous areas of fibrin deposit. The abdominal cavity was flushed thoroughly with saline solution, a drainage established above the pubes, and a retention catheter fastened in the urethra.

The patient's toxic symptoms subsided in the following three days, a normal amount of urine was excreted, and immediate recovery seemed almost assured. But there had been no bowel movement and no passing of gas; and on the fourth day excessive tympanitic distension and re-appearing emesis of intestinal contents pointed unmistakably to bowel obstruction. The wound was reopened, and disclosed an abdomen filled with a delicate film of adhesions, which seemed to confine and obstruct the small intestine at several places. There was no fluid present. It seemed hopeless to try to break up all the adhesions, and so only the more constricting ones were severed. Intestinal drainage was established by suturing a catheter into the ileum. The recovery was slow, being interrupted by a partial breaking down of the abdominal wound and a temporary urinary fistula through the vesical laceration. She left the hospital after two months with the fistula closed and the wound nearly so.

She was advised to return within a year to have the unavoidably oncoming ventral hernia repaired. She did so, but had married in the meanwhile and was seven months pregnant, the uterus lying in the hernial sac in front of the abdominal wall. She completed her term, and passed successfully through a very severe labor, having carried the uterus in the hernial sac the entire time. Several months later a herniotomy was made which proved the final step in her cure.\*

My second case of ruptured bladder belongs to the extraperitoneal class, and was associated with a compound fracture of the pelvis.

#### CASE 2

A boy of sixteen was injured in a runaway, having been dragged by a rope twisted about his leg. On examination, thirteen hours after the accident, he was found to have a lacerated wound in the perineum from which blood, urine, and feces escaped. The symphysis pubis was widely separated and roöntgenograms showed also a separation of the left iliosacral synchondrosis, permitting an abnormal mobility of the left hip upon the sacrum.

The perineal wound extended through the sphincter ani and into the bladder. The bladder was torn entirely loose from the pubic bones and from the anterior abdominal muscles, leaving an open space from the perineum to the umbilicus. The peritoneum was apparently not injured. The bladder laceration curved around the neck of the bladder for two-thirds of its circumference.

Operation was done as soon as the patient's condition permitted. The bladder wound and the rectum were sutured with interrupted chromic catgut sutures, the prevesical space was drained through the perineum, and a large retention catheter was left in the urethra.

Tight strapping about the hips was found inefficient to hold the symphysis together and to control the excruciating pain in the sacro-iliac region. The expedient of external fixation by means of Freeman's screws and clamp was then adopted. The screws were put through uninjured tissues into the bodies of the pubic bones on each side, and the symphysis held in approximation with the external clamp. This controlled the sacral pain almost immediately and proved a most satisfactory treatment for this condition.

A urinary leakage developed in the perineum on the eighth day, as was expected in the presence of fecal and other infection. Daily acetic acid irrigations of the bladder were employed to overcome a tendency to incrustations from the purulent and alkaline urine. The catheter was removed on the fifteenth day. From this time on, there was a steady increase in the volume of natural urination and decrease in that of leakage. A perineal leakage persisted off and on for some time, but the fistula healed entirely after six months.

The Freeman screws loosened, and were removed on the twelfth day, and a sacro-iliac belt was applied. Bony union was not expected in the presence of infection, but the pubic bones were held in fair approximation while a firm and serviceable fibrous union was inaugurated.

The general condition improved steadily, and the wound healed with surprising rapidity. The patient left the hospital after nine weeks' treatment, able to walk and to hold his urine for an hour or two at a time. A letter, received two years after the accident, states that he still has to urinate quite frequently and that under certain conditions of physical or mental strain he has a slight incontinence, but he is free from pain, in good general health, and able to work, and to enjoy life in a fairly satisfactory manner.

In conclusion, I wish to refer again to the article by Fuller and his recommendation of the early suprapubic cystotomy even "on suspicion" of bladder-rupture, and as a "prophylaxis" against extravasation. While rupture of the bladder is an infrequent accident anyone of us may at any time be put to the test as to whether we have the necessary judgment. Upon this judgment may depend the patient's life—will depend the patient's future health. Medical sins of commission cannot be greater than those sins of diagnostic omission which permit hopeful and curable conditions to drift into hopelessness.

\*Reported in Surgery, Gynecology and Obstetrics.

## THE PREVENTION AND TREATMENT OF TETANUS\*

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In 1909, tetanus caused the death of 23 persons in Minnesota. Since then the yearly toll has maintained an average of 29 deaths, reaching 33 in 1913, a death-rate in the last-mentioned year of 1.6 per 100,000 population. The death-rate in the same year from smallpox was 0.5 and from meningitis of all kinds only 5.2. While, therefore, tetanus cannot be listed as a major pestilence in this particular state, its incidence in the South, for example, reaching far more serious proportions, nevertheless many of us during the coming year will be compelled to treat one or more of these patients, and the proper handling of such cases becomes a serious matter, especially for the patient, but also for our own peace of mind, not to mention the general welfare of the community. This latter aspect assumes increased importance when we remember that in the past the average age of the patients dying from tetanus in Minnesota was about 20 years,—i. e., they were on the threshold of economic productiveness.

When von Behring and his pupils announced the serum or antitoxin treatment of tetanus and diphtheria, the success attained in the latter disease led the medical world to hope for similar success in the handling of tetanus by this method. What has been the result? Judging from the most carefully compiled statistics, including all kinds of cases, the mortality has, perhaps, fallen from around 90 per cent to about 60 per cent. How much of this drop is due to our modern surgical technic, with or without prophylactic antitoxin is difficult to estimate; at any rate it is certainly true that in the minds of most practicing physicians in this country, as well as on the Continent, a case of outbroken tetanus is practically doomed, so far as any assistance which we may offer him is concerned. We give antitetanic serum in large, generous doses; we inject this anywhere we have been told it should go (we would embalm with it, if it would do any good); we order chloral, chloroform, etc., to relieve pain; and then we commend our patient's soul to the next world with a spirit of therapeutic nihilism which has been forced to conclude that, in this disease at least, if the patient gets well or dies, our efforts count

but little toward the result. Honest confession bids us believe that those who recover and those who do not, would do so anyway, no matter what measures we do or do not adopt. After one or more hopeless battles we are prone to become as fatalistic toward this disease as we must be toward a patient with tuberculosis meningitis, yellow fever, or (shall we say?) lobar pneumonia.

The cause for such a condition of affairs is not difficult to find. After the symptoms have appeared, antitetanic serum is apparently of absolutely no value, *surely* so in the early, rapid, virulent cases; and, perhaps, even in those of longer incubation and more mild in development, the recovery is more to be attributed to the small amount of toxin than to the administration of antitoxin. Here we repeat with readiness the common and undoubtedly, in the main, correct explanation that already at the time of the first symptoms enough toxin has been bound to the ganglion cells to decide the issue in any particular case. Our antitoxin cannot reach this toxin, and, though we struggle on and instinctively try to do our duty, *cui bono?* What's the use?

If the situation were really as desperate as I have indicated, my remarks on this subject would serve no good purpose, for consolation sentiments have little place in modern scientific medicine.

Two features of the subject, however, really deserve more extended consideration. One is already an old story which needs emphasis and reiteration; the other is a newer phase and merits careful attention.

The "old story" is prophylaxis. If, in 1897, Nocard thought it necessary to recommend that all horses injured and operated on be treated with a small dose of antitetanus serum; if, in 1899, von Rosthorn concluded, in the presence of an epidemic of puerperal tetanus, that he was justified in giving serum to every woman delivered in his clinic; if, in 1902, Raboul, Guinard, Schwarz, and others announced that they made it a routine practice to give prophylactic treatment to all cases with unclean wounds, and Vallas went so far as to assert that for a physician not to administer antitoxin in all those with dirty wounds was a failure in correct treatment; if, in 1905, Suter was able to report that since

\*Delivered before the Hennepin County Medical Society.



1896 over 700 wounded patients in Julliard's clinic in the Geneva Hospital had received prophylactic treatments without a case of tetanus, while two patients in whom the treatment was accidentally omitted developed the disease and died; if, in 1906, Kocher had declared that he would call to account any doctor treating a relative of his with an unclean wound who did not give preventive serum; if, in 1912, Tizzoni emphasized its use in all cases of wounds, especially shot wounds; if, in the United States, an epidemic of tetanus every Fourth of July, which in 1903 claimed 406 deaths, could be reduced to 3 deaths in 1914 by the early use of antitoxin combined with rational observance of this holiday; if, in the present war, the incidence of tetanus among French soldiers is almost nil because of uniform injections after all wounds; and if, among the Germans, after suffering from a horribly high morbidity and mortality from this disease, similar measures practically abolished its appearance,—after all this testimony and after our own minds are convinced of the efficacy of the method, would it not be worth while to advocate more strenuously its uniform employment after all accidentally received wounds? Thirty deaths a year, prevented, even if we must make tens of thousands of unnecessary injections, would be a dividend in human lives with which we might well be content.

The incidental difficulties of the procedure are by no means prohibitory. The expense might well be borne by the State. Free serums for all its people is not only a safe and sane investment for any commonwealth, but also a rational protective policy to be rated equal in value to the expensive measures inaugurated without question, for protection against fire, robbery, and murder. Education of the public to the dangers of dirty wounds, and the efficacy of antitoxin against one of the most fatal of these dangers, would soon result in a demand that every outbreaken case of tetanus be investigated to determine who had, perhaps, failed to give this particular patient his right to be protected from this disease. Physicians would then regard antitetanic serum as a routine emergency measure, fully as important as the stasis of hemorrhage or the cleansing of a wound.

Naturally the dangers of such an injection, or anaphylaxis, will recur to the minds of many, and with some may become an honest obstacle to recommending antitoxin as a routine procedure in all dirty wounds—and what wounds are not

dirty? To such, recent investigations show the entire feasibility of avoiding such dangers by a preliminary very small dose of serum a few hours before the larger dose is finally given. In asthmatics and those who give reason to fear the results of large injections of horse serum, such a "proofing" will not only test the danger but will better prepare for the succeeding and really desired dose.

The second suggestion carries us onto theoretical grounds and is less commonly considered. We have been taught for many years that tetanus toxin unites chemically with nerve tissue, and Wassermann and Takaki are supposed to have proved this when, in 1892, they mixed brain pulp and toxin together, and found that the mixture had neutralized the toxin. The conclusion is inevitable that some sort of a combination occurs, but that it is chemical in the ordinary sense does not necessarily follow. Indeed, certain facts lead us to believe that this union is not a particularly stable one and that, whatever has actually occurred, we are not dealing with a substance which in any way affects the real integrity of the spinal or cerebral tissue. For example, both human beings and animals may recover from severe attacks of tetanus, and show absolutely no enduring lesions as the result of the disease. Next, both in the clinic and in the laboratory the most careful examinations have failed to reveal any uniform organic changes in either ganglion cells or nerve processes. Furthermore, in those animals and occasionally in man, in whom chronic stiffness has been produced which lasts for some time, the possibility of a return to absolutely normal functional and organic conditions has often been fully demonstrated.

It is hopeless to expect detection of what has really occurred by making chemical investigations; and microscopical research has proven an equally fruitless task. Measured by its results, in tetanus toxin we have a stimulant, an excitant, an overbalance in metabolism in which certain elements tending to establish function of ganglion cells are over-developed or over-emphasized or unduly concentrated. The vague and ill-defined manner of our expressions surely indicate the paucity of our exact knowledge of the real activities which are set in motion. The one important fact that stands out is, that here no unalterable chemical combination takes place, neither are the nerve cells or processes unalterably damaged.



What does this mean? It means that, if, by any means, a tetanus patient could be kept going long enough he would always recover. What is the difficulty? First, his spasmodic struggles may exhaust him to a supreme degree, and pure physical and nervous prostration may almost alone bring about a fatal outcome. Narcotics are here demanded, not to relieve the convulsion, but to prevent it. If it is too late to administer antitoxin prophylaxis, it is rarely too late to adopt vigorous prophylactic measures against spasmodic seizures. My time does not permit a discussion of what these measures should be. I can only point out that in many cases a 25 per cent solution of magnesium sulphate injected under the skin in appropriate amounts, with or without light ether anesthesia, will completely abolish all spasms, give the patient sleep and allow feeding, dressing of wounds, etc. The remedy must be used early and boldly.

The second peril to the patient is loss of nourishment and loss of sleep, the one due to trismus and spasms of esophageal muscles, the other due to the intense pain of the convulsive seizures and the inability to relax the stiffened muscles. Here again narcotic or antispasmodic treatment may completely, if only temporarily, relieve the distress.

The third and more serious and really ever-impending danger is respiratory failure. This complication is usually the immediate cause of death in the large majority of cases; and it is in the face of this complication that we are, at the present time, most helpless. The generally accepted view is, that this respiratory difficulty is due to spasm of the respiratory muscles, thus preventing all movements of the chest or diaphragm. If this is true, the tetanus of these groups of muscles can be controlled by antispasmodics, just as effectively as the lockjaw and the other muscular spasms; moreover, Meltzer has shown the pos-

sibility of carrying out artificial respiration without involving any movements of the respiratory muscles, and Kocher has confirmed these observations. The pulmotor therapy is founded on these same principles. Two therapeutic aids are therefore open to us, and it is probably safe to say that neither is used to any extent in the treatment of tetanus in this state. Magnesium sulphate must be used up to the therapeutic limit; and, if it seems to be causing dangerous symptoms, an intramuscular or intravenous injection of 5 per cent calcium chloride will at once remove the danger, and "lift" the action of the drug, if the magnesium has been given subcutaneously.

Naturally, it is not to be supposed that, in this or in any other manner known at the present time, can we save every patient; however, I am firmly convinced that if we begin early enough, and work hard enough and long enough, many a tetanus patient's energies may be so conserved that his own nervous system will have time to "wear out" (neutralize or destroy) the effect of the toxin, and we will have lifted him over the high ridge of his danger.

Of course, other measures must be adopted,—intravenous antitoxin to prevent further toxin absorption, quiet and seclusion to protect his sensitized nervous system, and only such surgical measures as are necessary to abort or remove other septic perils. But, above all, constant expert attendance is demanded, that each change in symptoms may be promptly and appropriately met.

My two propositions are, then, prophylaxis in every kind of dirty wound or injury, and early, vigorous, continuous therapeutic endeavor in every outbroken case of tetanus, which disease should not be as hopeless as a survey of the literature would lead us to believe.

# THE JOURNAL-LANCET

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## THE 1916 MEETING OF THE A. M. A.

Detroit covered herself with glory in the recent entertainment of the American Medical Association. About forty-five hundred physicians were registered; and, together with their relatives or friends, the number of people who went to Detroit through the American Medical Association, must have been about six thousand. Detroit is a city of wonderful beauty, and of very many hotels, and boasts of a population of more than seven hundred and fifty thousand. Yet, in spite of its size, there was a great deal of crowding, and a large number of the visitors were obliged to find resting places in private homes.

Notwithstanding the beautiful weather, the entertainment, and the active interest in the session work, the fact that Detroit is not large enough to adequately take care of such a crowd was a drawback.

The sections in the Detroit meeting were well cared for in various public buildings, churches, and halls, but some of the sections were separated from other section work by great distances. In spite of this fact, however, the sessions were well attended throughout, and each man stayed with his special section and seemingly did not care to visit the other workers.

The programs of the various sections were well arranged, and evidently more work was done this year in the preparation of the program than has heretofore been given. The general comment by the men was, that the Detroit meeting was the most successful that the Association has had for years. Minnesota did well in her attendance, about one hundred and thirty physicians being registered from the state. Of course, the largest registration was from Michigan and the adjoining state of Illinois.

Detroit offers many attractions to sight-seers. The beautiful Belle Isle, the public park of Detroit, is one of the finest in this country. The drives along the Detroit River and Lake St. Claire, lined with their beautiful estates, and the boulevard drives through and around the city, with the uniformly good roads everywhere, were a continued source of delight.

Detroit also offers to the sight-seer pharmaceutical houses of world-wide fame; and here is located the home of Parke, Davis & Company, whose buildings cover twenty-six acres of land, with a farm outside the city where animal experimentation is carried on and animal antitoxins are made. Many of the visitors took advantage of the invitation of the company and visited the laboratories and rooms for making pills, pellets, tablets, and capsules, all of which processes are very wonderful, and show the care and precision with which this house carries on its work and makes its preparations.

Last, but not least, is the automobile industry. It is said that there are thirty-four automobile and truck factories in Detroit, and that a new automobile is born every minute. The various obstetricians in charge of this tremendous birth-rate are very expert, and one can see automobiles starting from almost nothing and found completed in the course of an hour.

The physicians of Detroit showed their well-known hospitality in every conceivable way. They looked after the comfort of all the visitors; they made inquiries as to whether anything was lacking; they entertained individually and collectively; and they provided all sorts of comforts and devices whereby the visiting doctor was made to feel at home. Automobile factories placed at the disposal of the American Medical Association large numbers of automobiles, so that one had but to hail a car with an A. M. A. sign on it and ride.

No other city will be able to entertain as Detroit did, for no other city will take the same interest in the welfare of its guests.

## THE FORD HOSPITAL

Some years ago the city of Detroit decided to build a large municipal hospital, and to that end subscriptions were obtained from individuals and corporations to the amount of four hundred thousand dollars. A committee of experts was appointed to visit the cities of Europe and hospitals in this country for the purpose of selecting the best in each of them. The committee came back from its trip with an elaborate report, very carefully worked out; and their plans were given to an architect who designed the buildings. The first and most important step taken by this committee was to provide for an eighteen-hundred-bed hospital, and to that end they built heating-plants, lighting-plants, electrical machinery, a water power, sewers, and everything necessary for the equipment and maintenance of a big hospital.

After building two or three moderate-sized buildings, their money gave out, and work was suspended for eighteen months. At this time Mr. Henry Ford went to the committee with the proposition that he would return to the contributors the entire amount subscribed, namely, four hundred thousand dollars, and he would take the hospital under his own direction. His proposition was accepted, and the hospital as it now stands is known as the Ford Hospital. It has nothing in common, however, with the Ford automobile plant, being located three miles nearer the city, and, besides, Mr. Ford has a small hospital in connection with his factory, with a staff of doctors, who take care of temporary cases, and only about one-fourth of the injured from the automobile works go to the Ford Hospital, the other three-fourths coming from the city or the country, so that it is in no sense an automobile or accident hospital for the Ford factory.

The hospital, however, is what is commonly called a closed hospital,—that is, Mr. Ford has employed an internist and a surgeon, both well known in their specialties, and both graduates of Johns Hopkins Hospital. From each of these men he demands full time, and he pays them each a salary. They and their assistants do all the work of the hospital,—that is, take care of all the patients in the hospital; and no other physician or surgeon is permitted to bring a patient in there and treat or operate on him. This provision has created some dissension among medical men in Detroit, and the outsiders are watching the experiment, as they call it, with

a good deal of interest, and they are rather skeptical as to the final success.

The present hospital has but ninety beds, but it has a large building for laboratory purposes and research work, and a building for the housing of employees. Mr. Ford has his own ideas of how a hospital should be run, and he is going to carry them out to demonstrate their worth. During this year a new building will be erected for the accommodation of two hundred and fifty beds.

Quite naturally, the hospital is not a money-making proposition; in fact it is a very expensive plant, but, as Mr. Ford has unlimited means, that does not embarrass him at all. Apparently, there is nothing lacking in the hospital equipment. To the careful inspector it is probably as well constructed and as well devised and equipped as any hospital in this or any other country. No expense is spared in the equipment. In many of the rooms there are large copper refrigerators, and cases and cupboards and like things for the care and protection of specimens and for chemical and bacteriological work. The operating-rooms are numerous and thoroughly well developed, both as to size and light. An operation can be done at midnight by artificial light so arranged and devised as to make it equivalent to daylight. The walls of the operating-rooms are of green tile up to eight feet. With this color scheme the operator is not dazzled by a continuous wall of white. The floors are indestructible and permit of perfect drainage. The smaller rooms outside the operating-rooms are for sterilization purposes, for anesthetics, for preparation rooms, and contain everything that is necessary, even to the warming cupboards where towels, blankets, and coverings are kept at a uniform temperature. Ice-boxes may be found in every room. There is also a suction-plant, whereby a hose can be attached to a nozzle in the wall, a glass tube inserted into the wound, and all blood and pus can be immediately sucked away, leaving a clear, clean, dry field for the operator. The operating-room is provided with a clothes-chute, lined with glass from top to bottom, and so arranged that the whole surface can be flooded with water, thus insuring absolute cleanliness. Distilled water can be drawn from a tap, just as ordinary tap-water is drawn. This distilled or sterilized water is for the convenience of the operator.

The air in the hospital and in the operating-rooms is washed and cooled so that the tem-



perature can be maintained at any time of the year at any desired degree.

Architecturally, the hospital buildings are simple, but absolutely fire-proof, and surrounded by wide spaces for light, air, and extension purposes.

If some equally good and philanthropic individual who has money that he might dispense with during his lifetime would build such an institution for Minneapolis, the physicians and the public would rise up and cheer, but the wealthy man of the West is not in the habit of building hospitals. This thing is considered good form in the East, and it is not uncommon to see beautiful hospitals, beautiful convalescent homes, and quarters of that order contributed and built by wealthy men. The opportunity is a great one for Minneapolis; and all that is lacking is the individual contributor.

#### DAMAGES, ONE CENT

It is quite evident that the association of patent medicine men decided upon a line of attack to test out the conduct of the American Medical Association propaganda. For several years past the Council on Pharmacy and Chemistry has been publishing facts about the contents of patent medicines, and not infrequently has made some very pertinent comments upon patent compounds. The Chattanooga Medicine Company, which manufactures Wine of Cardui, through the proprietor, Mr. Patten, brought suit against the Association for libel. The case has been on trial in Chicago for the past eight weeks, and after a long and exhaustive effort on both sides, the jury, after deliberating several days, finally brought in a verdict of one cent for the Chattanooga Company. This throws the burden of the court costs upon the American Medical Association. The total cost to each side has been, it is said, not less than \$125,000.

The first and second cases were tried together. The first case was brought by Mr. Patten for damages in which he claimed that the American Medical Association libelled him and injured his church affiliation. In this suit he asked two hundred thousand dollars damages. The second suit, tried at the same time, was brought by the Chattanooga Company. During the trial Mr. Patten died, consequently the first case was dropped and the second case continued.

The verdict is virtually a victory for the Wine of Cardui Company, and means a very decided victory for the patent medicine association. Dur-

ing all of this time the Wine of Cardui Company has been receiving gratuitous advertising, and it is well known that people at large believe, or choose to believe, the favorable side of the patent medicine, and although the American Medical Association was able to prove that the Wine of Cardui contained a large percentage of alcohol, together with other substances which are more or less antiquated as drugs, the people will believe that this preparation has decided medical merit. This drug, so comparatively unknown in the North, is very extensively advertised throughout the South, and it is rumored that the sales of the preparation have been enormous through various southern states.

The question arises as to whether it pays to attack a patent medicine. Of course, it is necessary to educate the people as to worthless preparations, and particularly such as contain a large amount of alcohol; but in attempting to bring about a reform of this kind there is always the possibility that the reformer may lose, as did the American Medical Association.

This victory will be heralded throughout the country, and the patent medicine men will all take advantage of this unfortunate situation. In looking over the field of reformers, it is not alone the efforts to regulate drugs that fail, but reformers of all types are quite as apt to be caught by some technicality, and more particularly by public sentiment, than they are by a true representation of their efforts. The present effort to suppress vice is another instance of what is at least temporarily evident. Vice continues to thrive, and thrives more on advertising and attack than it does when not exposed to public comment. This is not meant to infer that vice should not be attacked, controlled, or prevented, but is publicity the way to accomplish the true end? The majority of people will say that publicity is necessary in attacking and preventing misdemeanor or misrepresentation, and that it is necessary to expose the true state of affairs and give all the publicity possible. But, when we come to analyze all these situations, not infrequently the people are with what they call the under dog. They may express themselves as against a patent medicine or against a vice, but after they have had it dinged into their ears for a certain length of time, they throw up their hands and say let it go on, and not infrequently they vote for the bad side of the question.

An illustration is given by the efforts of a

small city of Minnesota. The municipality, through the efforts of high-minded men and women, decided upon the control of the saloon element. The city was under the commission form of government, and it was definitely understood between the mayor and the saloon men that the ordinance would be enforced for the closing of saloons, and a certain definite hour agreed upon by the saloon and the municipality. This plan worked very successfully for two years. The citizens of this city enjoyed the restraint of lawlessness, the better name which their town carried, and, in all respects, were perfectly comfortable under their new regime. At the last election, however, the good machine was turned up side down and a poor one substituted. The result is, that this city has gone back to the old ways, and retrograded to such a degree that the saloons are now wide open, the better influence has been entirely cut out, and the town is on a downward path. This failure was not due to the efforts of the municipal officers, but it was due to the failure of the people to continue a good thing when they had it; but, because the public are fickle and changeable, they decided that something else would be to their commercial advantage. So it is with most of these questions. Public sentiment cannot be depended upon for any length of time, but the educational propaganda must go on.

Perhaps it would be just as well if we should attempt to instruct the people in the best that there is, and not hold up to their view the evil that exists. The education of the young in things that are wholesome, healthful, and clean makes clean men; but this, of course, cannot apply to all classes. There is still a very large proportion of people who do not consider the early training or education of their children. Too many children are allowed to drift and grow up as they choose.

The American Medical Association will probably not be discouraged in its effort to expose drugs that are more or less injurious and more or less worthless. It will probably go on in spite of a temporary defeat. It cannot go on, however, unless it has the full support of the medical profession and the support of the people behind the doctors.

## NEWS ITEMS

Asbury Hospital graduated eighteen nurses last week.

A new hospital has been opened at Parkers Prairie.

Dr. Felix Traxler, of St. Paul, has located in Henderson.

Dr. F. A. Douglas has moved from St. Cloud to Richmond, Ind.

Dr. O. N. Bossingham, of Ringsted, Iowa, has located in Lake Benton.

Dr. M. H. Culbert, of Jamestown, N. D., has located in Courtenay, N. D.

Dr. Julia Jacobson-Keats, of Antelope, Mont., has moved to Mandan, N. D.

Dr. Henry W. Woltmann, of Minneapolis, is spending some time at Rochester.

Dr. A. E. Sohmer, of Mankato, is spending several weeks in Buffalo, N. Y.

Dr. D. W. Hammond, of Breckenridge, is to practice on the Pacific Coast in the future.

Eighteen nurses were granted diplomas last week by the Swedish Hospital of Minneapolis.

Dr. Scott Searles, of Lakefield, has sold his practice to Dr. J. T. Rose, of the same place.

Dr. G. J. Thomas, for seven years a member of the Mayo staff, has moved to Minneapolis.

Dr. C. T. Grivelli, of Young America, died on June 14 at his home at the age of forty-four.

Dr. C. S. Sutton, of St. Cloud, was married June 10 to Miss Grace Hislop, of Fargo, N. D.

Dr. J. W. Bell, Jr., of Minneapolis, was married June 28 to Miss Margaret Merrill, of St. Paul.

Dr. W. M. Dodge, of Farmington, is spending two months in touring through the East in his auto.

Six nurses graduated last month from the training-school of St. Luke's Hospital at Fargo, N. D.

The training school of the Northern Pacific Hospital graduated a class of six nurses last month.

Dr. William P. Robertson, of Litchfield, was married on June 10 to Miss Eleanor O'Brien, of St. Paul.

Dr. D. W. Matthaei, of Chicago, has purchased the practice of Dr. W. H. Nugent, of

Harvey, N. D. Dr. Nugent will do postgraduate work in Chicago.

Dr. Oscar A. Burton has resumed practice at Albert Lea, after an absence of two years at Bryn Mawr, Penn.

Dr. J. C. Grogan, of Kenmare, N. D., has purchased the practice of Dr. I. C. J. Wiig, of Flaxton, N. D.

Dr. R. O. Leavenworth, of Glencoe, was married on June 14 to Miss Geneva M. Hilton, of Minneapolis.

Dr. G. E. Hertel, a graduate of the Medical School of the University of Minnesota, has located in Waltham.

The Bismarck (S. D.) Evangelical Hospital graduated from its training-school a class of seven nurses last month.

The alumnae of the nurses' training-school of St. Mary's Hospital, Minneapolis, gave the graduating class a banquet at the Radisson.

Dr. O. S. Olson, physician for the Duluth steel plant at that place, has left the company and opened offices for himself in West Duluth.

Dr. H. C. Drew, of Washington, D. C., has accepted the position as house physician at the Goodhue County Sanatorium at Mineral Springs.

Dr. J. D. Utley, of Spring Valley, has taken over the Midway General Hospital, between Minneapolis and St. Paul, and will continue its work.

Dr. C. F. Heinze, of Clifford, N. D., has sold his practice to Dr. Carl Hjelle, a graduate of Rush Medical College and of late a resident of Cincinnati.

The Mexican trouble will teach America a new lesson in health-conservation when the number of men rejected as below the physical standard is made known.

Dr. J. W. Chamberlain, of St. Paul, was elected grand generalissimo of the Knights Templar at the grand encampment of that fraternity at Los Angeles.

Dr. John M. Ekrem, of Brainerd, is secretary of a new hospital organization in that city. It is proposed to build a new hospital entirely by voluntary subscriptions.

The Medical School of the University of Minnesota has granted diplomas to members of the Class of 1915 from whom diplomas had been held until a year's internship had been served.

Dr. Mary Allen, of Philadelphia, has accepted the position as woman physician at the School for Feeble-Minded at Faribault, recently vacated

by Dr. Elisabeth Barnard, who has moved to Minneapolis.

Dr. G. E. Strout, of Winthrop, has sold his practice to Dr. M. E. Vogtel, of New Ulm, a graduate of the University of Chicago, and has formed a partnership with Dr. E. S. Strout, of Minneapolis.

Dr. Charles H. Mayo, of Rochester, was elected president of the American Medical Association at the Detroit meeting. The citizens of Rochester celebrated the event by tendering Dr. Mayo a banquet, and presenting him a beautiful loving cup.

St. Johns Hospital of Fargo, N. D., is to have an addition to its building which will cost \$150,000. The city of Fargo went wild last month in an eight-day campaign to raise \$100,000 for the work. The new hospital will repay the money a hundredfold.

Dr. Fannie Dunn Quain, secretary of the North Dakota Anti-Tuberculosis Association, contributed to the *June Pennant*, the Associate journal, an interesting account of the dedication in May of the State Sanatorium at Dunseith. Her association maintains an open-air school for the patients of the Sanatorium.

At the recent examination of nurses by the State Board, held at St. Paul, the following five graduate nurses from St. Raphael's Hospital at St. Cloud successfully passed the examination: Miss Rose Bechtold, St. Joe; Miss Catherine Graham, Melrose; Miss Marie Franzel, Eveleth; Miss Elizabeth Halweg, St. Cloud; Miss Theresa Nordmann, Richmond.

At present several vacant beds for both men and women exist at the following Minnesota tuberculosis institutions: Otter Tail County Sanatorium at Battle Lake, Mineral Springs Sanatorium at Cannon Falls, Sunnyrest Sanatorium at Crookston, and Sand Beach Sanatorium at Lake Julia. For further information physicians should write to the local superintendent of the various institutions.

The Watertown District Medical Society of South Dakota met in Watertown on June 13. The following papers were read: "Diagnosis and Treatment of Simple Fractures," by Dr. P. S. McIntyre, Bradley; "The Medical Phase of Gynecology," by Dr. W. G. Magee, Watertown; "When to Operate for Mastoid," by Dr. L. G. Hill, Watertown; "The Dispensing Physician," by Dr. C. A. Williams, Doland.



In the war on tuberculosis the minimum number of beds in sanatoria for tuberculous patients is placed at one bed for each death from tuberculosis in the state annually. New York has long stood first, and has so stood with less than 50 per cent of the minimum number. Minnesota now stands first with 55 per cent of the number of deaths in the state. Minnesota was the first state to pass the half way (50 per cent) mark.

The Lake Preston Medical Society of South Dakota held a meeting on June 14 at Huron. Dr. J. W. Shuman, of Sioux City, was the guest of the Society, and read a paper on "The Diagnosis of Gastric Diseases." Dr. H. H. Frudenberg, of Madison, read a paper on "Odd Cases." Dr. E. B. Taylor, of Huron, read one on "Anesthetics in Labor"; and other members gave accounts of interesting cases they had had.

The Minnesota School for the Feeble-Minded will hold a summer school from June 26 to August 5 for physicians, teachers, superintendents, medical inspectors, social workers, and others who wish to study mental deficiency. Dr. A. C. Rogers, Superintendent of the state institution, will be in charge, and will be assisted by Mr. C. G. Schulz, State Supt. of Schools; Dr. A. E. Meyerding, Director of Hygiene of the St. Paul Public Schools; and Miss Henrietta Rockham, of St. Paul.

The forty-eighth annual meeting of the Wabasha County Medical Society will be held at Plainview on July 6. Five papers will be read, and there will be a general discussion on the liquor question as set forth in Dr. John Roger's presidential address before the State Medical Association in 1915. Reference is made in the program to Dr. Roger's remarks found on page 603 of THE JOURNAL-LANCET of November 1, 1915. A dinner has been tendered to the physicians attending by Drs. J. A. Slocum and E. A. French. All physicians are cordially invited.

#### LOCUM TENENS WANTED

I want some one to take my place for three or four weeks, beginning the early part of July. Address 372, care of this office.

#### LOCUM TENENCY WANTED

Graduate of Class A+ school who finishes a year's internship in a city hospital wants position as locum tenens. Address 362, care of this office.

#### HOSPITAL FOR SALE

Hospital with surgical and general practice in a progressive Minnesota town with large surrounding field. Price and terms reasonable. Address 367, care of this office.

#### PRACTICE FOR SALE

North Dakota practice for sale. No competition. Population, 700. Excellent schools. Large territory. Will sell for \$500, including household goods. Address 363, care of this office.

#### DESK SYSTEM FOR SALE

One complete Desk System of the American Desk & Register Co., with full line of stationery. Beautiful weathered oak desk. Cost \$200. Will sell for \$100 cash. Address 364, care of this office.

#### FOR SALE

Instruments, office fixtures, books, furniture, etc. This offers an exceptional opportunity for any one wishing to equip an office at reasonable prices. Address inquiries to Mrs. A. P. Keam, 916 Marshall Ave., St. Paul, Minn.

#### ASSISTANT OR PARTNER WANTED

In Southern Minnesota village of 600. Young or middle-aged man with speaking knowledge of German or Scandinavian preferred. When writing give lowest salary, qualifications, and references. Address 373 care of this office.

#### NURSE WANTS POSITION IN DOCTOR'S OFFICE

A Graduate Nurse wishes work in a doctor's office or in a hospital; is willing to take a position anywhere in the Northwest. Has been doing private nursing, but prefers to make a change. Address 369, care of this office.

#### HOSPITAL ASSISTANT WANTED

Wanted, in connection with a private hospital, an ambitious young man with fair knowledge of the microscope and pathology, and with a desire to become a first-class internist. Will pay salary and expenses at first, and partnership if he makes good. Address 366, care of this office.

#### PRACTICE FOR SALE

Minnesota city practice for sale, or partnership offered. Entirely office practice. Genito-urinary specialty. Wish partner acquainted with this line, as partner with view to successorship, or physician to become proficient in this line. Necessary to speak Scandinavian language. Address 894, F. V. Kniest, Medical Broker, Omaha, Nebr.

#### INSTRUMENTS FOR SALE

\$1,500 worth of instruments for treatment of eye, ear, nose, and throat. Must sell to one person or institution. No piece sales. Also other surgical and diagnostic outfit. Inspection only for probable purchasers. Price low. Address Flora L. S. Aldrich, Anoka, Minn.

#### ASSISTANTSHIP WANTED

Wanted: Permanent association with busy surgeon, by ambitious, active young physician. Graduate of University of Minnesota; one year as interne at large city hospital; one year assistant in surgical practice. Single; no bad habits; can speak German. Special training in laboratory and x-ray work. Am interested in surgery, and am not afraid of hard work. Address 365, care of this office.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF  
MINNESOTA FOR THE MONTH OF MARCH, 1916

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

[illegible]

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian .....	1,258	1,112	1															
Aitkin .....	1,719	1,633	0															
Akeley .....			0															
Appleton .....	1,184	1,221	3				1											
Belle Plaine .....	1,121	1,204	1														1	
Blwabik .....		1,690	3		1													
Bovey .....		1,377	0															
Browns Valley .....	721	1,058	1															
Buffalo .....	1,040	1,227	1															
Caledonia .....	1,175	1,372	1															
Cass Lake .....	546	2,011	0															
Chisholm .....		7,684	13	3		4				1		2				1		1
Coleraine .....		1,613	2															1
Delano .....	967	1,031	0															
Farmington .....	733	1,024	0															
Fosston .....	864	1,055	0															
Frazee .....	1,000	1,645	0															
Grand Rapids .....	1,428	2,239	5				1											
Hibbing .....	2,481	8,832	11	1	2	1					1					1		1
Jackson .....	1,756	1,907	4			1										1		1
Janesville .....	1,254	1,173	2															
Kenyon .....	1,202	1,237	0															
Lake Crystal .....	1,215	1,038	1															
Litchfield .....	2,280	2,333	4															
Long Prairie .....	1,385	1,250	2															
Madelia .....	1,272	1,273	1															1
Milaca .....	1,204	1,102	1															1
Mountain Lake .....	959	1,081	5															4
Nashwauk .....		2,080	2							1								1
North Mankato .....	939	1,279	1															
North St. Paul .....	1,110	1,404	1															
Osakis .....	917	1,013	1															
Park Rapids .....	1,313	1,850	1															
Pelican Rapids .....	1,033	1,019	0															
Perham .....	1,182	1,376	3				1											
Pine City .....	993	1,258	1	1														
Plainview .....	1,038	1,175	1															
Preston .....	1,278	1,193	9															
Princeton .....	1,319	1,555	2														2	
St. Louis Park .....	1,325	1,743	0															
Sandstone .....	1,189	1,818	0															
Sauk Rapids .....	1,391	1,745	1			1										1		
South Stillwater .....	1,422	1,343	2															
Springfield .....	1,511	1,482	0															
Spring Valley .....	1,770	1,817	0															
Wadena .....	1,520	1,820	1															
Wells .....	2,017	1,755	5	1													1	
West Minneapolis .....	2,250	3,022	6				1										2	
Wheaton .....	1,132	1,300	3			2												
White Bear Lake .....	1,288	1,505	2														1	
Windom .....	1,944	1,749	3														1	
Winnebago City .....	1,816	2,555	0															
Zumbrota .....	1,119	1,138	3															
STATE INSTITUTIONS																		
Anoka, Asylum .....			2	1														
Faribault, School for Blind .....			0															
Faribault, School for Deaf .....			0															
Faribault, School for Feeble Minded .....			15	3	1	1				3				1				
Fergus Falls, Hospital for Insane .....			9	1		1		1										
Hastings, Asylum .....			1															
Minneapolis, Soldiers' Home .....			8															1
Owatonna, School for Dependents .....			0															
Red Wing, State Training School .....			0															
Rochester, Hospital for Insane .....			10			1												
Sauk Centre, Home School for Girls .....			0															
St. Peter, Hospital for Insane .....			15	5	1	2	1											
St. Cloud, State Reformatory .....			0															
Stillwater, State Prison .....			0															
OTHER PARTS OF STATE			852	61	5	95	1	8	27	0	16	0	1	4	32	59	1	41
Total for state .....			2228	165	42	210	19	17	73	0	28	0	2	12	63	146	6	125

\*No report received. REGISTRAR not doing his duty.  
148 stillbirths not included in above totals.



# Straining at Stool

is minimized, and often overcome, by the judicious use of **INTEROL**, which softens the fecal mass, and lubricates it all along the colon and rectum, past the sphincter, without irritating or abrading the mucosa.

Thus, there is less danger of ulceration; bowel evacuation is facilitated, and the patient made happy on this latter account alone,—entirely aside from **INTEROL'S** beneficial relation to the accompanying autotoxemia.

Also, **INTEROL** is of great comfort to the patient suffering from hemorrhoids or fissures, because it makes the fecal mass soft and plastic, so that it is passed with less difficulty and discomfort, and congestion is relieved. For these reasons, **INTEROL\*** has been suggested as a *prophylactic* measure of these conditions, both for adults and children.

\***INTEROL** is more than "ordinary mineral oil": (1) it possesses *effective lubricating body* so that it clings to the fecal mass—**INTEROL** has efficient "spread and mix" properties (2) no "lighter" hydrocarbons to disturb the kidneys (3) no sulphur compounds to disturb digestion (4) no odor or flavor, so that the patient *can* take it and derive its benefit.

Pint bottles at druggists. \***INTEROL** booklet on request.

VAN HORN AND SAWTELL, 15 and 17 East 40th Street, New York City

## So many cases of **Pruritus, Chafings, and Irritations**

are relieved by applying

### **K-Y Lubricating Jelly**

that we feel we owe it to our patrons to direct their attention to the usefulness of this product as a local application, *as well as* for surgical lubrication.

No claim is made that K-Y Lubricating Jelly will act with equal efficiency in every case; but you will secure such excellent results in the majority of instances that we believe you will continue its use as a matter of course.

**NO GREASE TO SOIL THE CLOTHING!**

*Collapsible tubes, 25c. Samples on request.*

VAN HORN AND SAWTELL  
15-17 East 40th Street, New York City

## **"For this relief much thanks,"**

said Hamlet.

So also says the patient who has just used the

### **K-Y ANALGESIC**

you told him to get  
from his druggist

**FOR THE LITTLE ACHES  
OF EVERY-DAY LIFE,—**

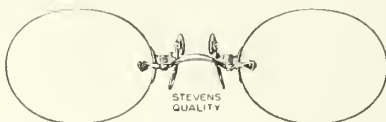
little aches where a hypodermic would be too much, and where the pain is also too much for the patient. In such conditions,

### **K-Y ANALGESIC**

is an agreeably efficient middle course. No grease to soil the linen. Washes off in water.

*Collapsible tubes, 50c., druggists.  
Booklet and sample on request*

VAN HORN AND SAWTELL  
15-17 East 40th Street, New York City



For Quick and Accurate R<sub>x</sub> SERVICE

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A laboratory for physicians where all examinations are made by trained physicians. All the advanced methods of laboratory diagnosis are used. We make vaccines according to Wright's Methods, having on hand preparations of all stock vaccines in sealed tubes ready for distribution. We make autovaccines from discharges or the blood.

**Wassermann Test** - - - - \$10.00

**Serum Test for Gonorrhea** - - - 10.00

**Serum Test for Tuberculosis** - - - 10.00

*Fee-table mailed on application*

**HENRY L. ULRICH, M.D., DIRECTOR**

## HAY FEVER

LOGICALLY TREATED

WITH

## SHERMAN'S BACTERINS

Pollen irritation favors the development of pyogenic bacteria in the respiratory tract which then become a primary factor of the disease. Experience shows that the immunizing influence of an appropriate bacterin will either cure the disease or so modify it that it causes but little distress

WRITE FOR LITERATURE

**G. H. SHERMAN, M. D.**

DETROIT, MICHIGAN

# Wassermann Test

## \$5.00

The classical test is made. The various modifications will be made upon request, without additional charge.

Sterile container with needle and complete instructions sent upon request.

## Examination of Pathological

**Tissue** - - - - \$5.00

Slides of sections sent upon request.

## Autogenous Vaccines - \$5.00

Pyorrhea

Asthma

Sinus Infections

Throat Infections

Bladder and Urethral Infections

Chronic Bronchitis

Endocarditis

Otitis Media

Skin Infections

Hay Fever

The *exciting* organism is identified and isolated. Cultures are made both aerobically and anaerobically. The vaccine is furnished in a single half-ounce container or in ampules in graduated doses. Culture media, with sterile swab and directions for collection of specimens, sent upon request.

## Complement Fixation Test for Gonorrhea . . \$5.00

is of especial value as an aid in diagnosis of arthritis

*Send for Fee List*

## National Pathological Laboratory

(INCORPORATED)

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## PUBLISHER'S DEPARTMENT

### THE CALUMET BAKING POWDER

The Calumet Baking Powder has stood every chemical test that can be applied to demonstrate its efficiency and healthfulness; and its long-continued use in the home, hotel, and institution kitchen has shown it to be the most desirable and economical powder on the market.

Special prices are made for hospitals and sanitariums and the company's booklet is sent free to anyone applying for it.

#### BETZ

Betz says his name on a package means that the thing within is "Best," and the price upon the memorandum bill that goes with the package is incontestable evidence that it is the cheapest.

While Betz sells everything, he announces in his advertisements special instruments from time to time. At present, as announced, he is selling a "Tycos" sphygmomanometer on a low price, free-trial, and monthly-payment plan. A free blood-pressure manual is given with the instrument.

### NO SHORTAGE OF PEPTO-MANGAN (GUDE)

It affords us pleasure to call special attention to the advertisement of Pepto-Mangan in this issue. It will be noted that plentiful supplies of this standard hematinic are again available, after a brief shortage of stock, due to unexpected delays in the fitting up of a new and thoroughly modern laboratory for its manufacture in New York City.

Pepto-Mangan (Gude) is now and will continue to be owned, controlled, and manufactured in the United States, and will be supplied, *exactly the same as heretofore*, in unlimited quantities and at the usual price.

#### FLY-PAPER

What has a physician to do with fly-paper? A whole lot. In the first place, he should recommend it for the household, and should *prescribe* it for the sick-room, where a fly should not be tolerated. He will also do his plain duty if he prescribes "Tanglefoot Fly-Paper," because its manufacturers were the pioneers in making a fly-paper of non-poisonous material.

The fly is a typhoid-carrier, and to permit one in a house where there is a typhoid patient is well-nigh criminal, and it is about as bad to permit many flies in any household—shows a reckless disregard of human life.

Doctor, tell your patients to use "Tanglefoot Fly-Paper," and so be free from the double danger of poison and disease.

### MUDCURA SANITARIUM

Dr. H. P. Fischer took no chances when he invested a large sum of money in the original building and lands for the Mudcura Sanitarium at Shakopee. In his large family practice in that place, he learned the possibilities of the sulphur mud of that vicinity; and he has built up an institution that is giving relief and permanent cure literally to thousands of patients.

Patients have the constant care of Dr. Fischer or Dr. Dempsey, his associate; and very few patients go there who do not receive very speedy relief from the

conditions, often distressing, which are known to be amenable to this treatment.

Perhaps no therapy is more certain in any class of cases than sulphur mud baths in the cases in which experience has shown it applicable.

### THERE IS A REASON FOR THE CLINICAL RESULTS WITH VACCINES IN HAY FEVER

The discussion of vaccine therapy in its efficiency in hay fever has brought out many interpretations. The co-relation of clinical experience and the lessons learned from the science of bacteriology show the importance of the general consideration of the therapeutics of bacterial diseases; and, as Sir Almroth E. Wright says, "Here the problem which ranks before every other is that of compassing the destruction of microbes in the tissues and fluids of the living body."

When we consider the role pathogenic micro-organisms play in their rapid multiplication in tissues subject to pollen irritation we soon begin to appreciate the advantages of vaccine therapy in hay fever. The reason for using vaccines in hay fever is that by this means we rapidly stimulate within the body the natural laboratory to furnish bacteriotropic substances which enter into a destructive biochemical combination with the bacterial protoplasm of the germs multiplying in the pollen irritated tissues.

The bacteriotropic substances thus furnished do not become inert in the blood and do not disturb or poison the tissue, and naturally by eliminating complicating germ invasions in hay fever cases the pollen irritation is of minor importance. The clinical fact is that Sherman's bacterial vaccines are rendering relief to the many patients subjected to the ravages of this disease, and physicians who are using them know this from their experience.

### A RESILIENT PUNCTURE-PROOF TIRE

Puncture-proof tires in the past have always been considered too heavy or too hard riding to appeal to the average automobile owner. The prevention of punctures in the past has generally been obtained at a great sacrifice of resiliency because metal or other stiff materials have been used to prevent punctures.

In the Woodworth Trouble-Proof Tires which have now been on the market for about a year, punctures are prevented by a strip of chrome leather, which adds very little to the weight of the tire and does not stiffen it so as to affect its resiliency. In former attempts to use leather as a puncture preventor, it has been a practice to place the leather on the outside of the tire, where it has been subjected to wear and to the action of moisture and dirt, which has caused its rapid deterioration. It has also been found that the leather on the outside of the tire will generally separate from the rubber and peel off.

In the Woodworth Trouble-Proof Tire the leather is placed on the inside of the tire where it is not affected by moisture and dirt; and, on account of it being compressed by the air-pressure, it is doubly effective as a puncture-preventor for the compressed leather having the fibres held very close together by a pressure of from 50 to 90 pounds to the square inch, is extremely difficult to penetrate.

The tires are guaranteed against punctures and blow-outs for 5,000 miles, and sell at about the same prices as other high-grade tires.





# Bubbles of Durum Wheat

## All Food Cells Exploded

Puffed Wheat is big grains of Durum puffed to eight times normal size.

We seal the grains in guns. For an hour we subject them to fearful heat. Thus the grains are cooked and toasted.

But more than that. The moisture in each tiny food cell is made steam. When the guns are shot that steam explodes, and each cell is blasted for easy digestion.

Each kernel contains over 100 million food cells. Cooking, baking and toasting rarely breaks half of them. This process of Prof. Anderson's blasts all of them to pieces.

And it makes each kernel an airy bubble, thin, flaky, crisp. It creates delicious morsels which melt in the mouth.

They are served with cream and sugar or in bowls of milk. They do not tax digestion. Every atom feeds.

### **The Quaker Oats Company**

Chicago

(1164)

Puffed Wheat	Except in	12c
Puffed Rice	Far West	15c
Corn Puffs—Bubbles of Corn Hearts—15c		

# THE JOURNAL-LANCET

The Journal of the Minnesota State Medical Association  
and Official Organ of the  
North Dakota and South Dakota State Medical Associations

PUBLISHED TWICE A MONTH

VOL. XXXVI

MINNEAPOLIS, JULY 15, 1916

No. 14

## TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION—THIRTY-FIFTH ANNUAL MEETING, 1916

### OFFICERS AND COMMITTEES

#### PRESIDENT

FRANCIS M. CRAIN, M. D. .... Redfield

#### FIRST VICE-PRESIDENT

H. J. G. KOOBS, M. D. .... Scotland

#### SECOND VICE-PRESIDENT

D. L. SCANLON, M. D. .... Volga

#### SECRETARY-TREASURER

ROBERT D. ALWAY, M. D. .... Aberdeen

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WILLIAM EDWARDS, M. D. .... Bowdle

#### COUNCILOR—SECOND DISTRICT

LESLIE G. HILL, M. D. .... Watertown

#### COUNCILOR—THIRD DISTRICT

N. K. HOPKINS, M. D. .... Arlington

#### COUNCILOR—FOURTH DISTRICT, AND SECRETARY OF THE COUNCIL

HARRY T. KENNEY, M. D. .... Pierre

#### COUNCILOR—SIXTH DISTRICT

FREDERICK TREON, M. D. .... Chamberlain

#### COUNCILOR—SEVENTH DISTRICT

G. G. COTTAM, M. D. .... Sioux Falls

#### COUNCILOR—EIGHTH DISTRICT

JAMES ROANE, M. D. .... Yankton

#### COUNCILOR—NINTH DISTRICT

F. E. ASHCROFT, M. D. .... Deadwood

#### COUNCILOR—TENTH DISTRICT

HAMPTON R. KENASTON, M. D. .... Bonesteel

#### MEMBER OF HOUSE OF DELEGATES, AMERICAN MEDICAL ASSOCIATION

PERCY PEABODY, M. D. .... Webster

#### ALTERNATE

B. H. SPRAGUE, M. D. .... Huron

### Proceedings of the House of Delegates

#### FIRST SESSION—TUESDAY, MAY 23d

The House of Delegates met at the Elks Hall, Aberdeen, May 23d at 2:30 P. M.

On roll-call the following responded:

Dr. J. B. Vaughn, Castlewood, President; Dr. R. D. Alway, Aberdeen, Secretary; Dr. G. W. Potter, Redfield; Dr. L. A. Pickering, Aberdeen; Dr. N. K. Hopkins, Arlington; Dr. Wm. Edwards, Bowdle; Dr. D. L. Scanlon, Volga; Dr. James Roane, Yankton; and Dr. F. E. Clough, Lead.

The Secretary presented his report as follows:

#### REPORT OF SECRETARY

To the President and House of Delegates of the South Dakota State Medical Association:

The membership of the Association is as follows: Aberdeen District, 80; Watertown District, 36; Lake Preston District, 35. Pierre District, 10; Mitchell District, 42; Sioux Falls District, 53; Yankton District, 51; Black Hills District, 41; Rose Bud District, 11. Total, 359, an increase of 22 over one year ago.

The First Aid Conference of America has requested this Association to appoint a committee of three surgeons, members of this Association, to be known as the First Aid Committee of South Dakota. I have several letters and printed matter sent to me by Dr. Joseph C. Bloodgood, of Baltimore, Maryland, which will explain the object of this conference, and what they expect to accomplish, better than I can. Their next meeting will be held in Detroit, Michigan, the day previous to the opening of the American Medical Association; our Committee, if we elect one, should be present.

I also wish to call your attention to a letter from the American Association for Labor Legislation of New

York City in regard to health insurance legislation. Bills have already been introduced in the legislatures of New York, New Jersey, and Massachusetts, they provide for medical care of the insured during illness. No doubt, similar bills will be introduced before our legislature in the near future, and on account of the important part we shall have to assume I would recommend that this body give the matter due consideration.

The terms of Councilors in Districts number 1, 4, and 7, and that of the Secretary-Treasurer expire at this meeting; and it will be necessary to elect their successors.

Respectfully submitted,  
R. D. ALWAY, M. D.,  
Secretary.

The President appointed the following committees:

Nominations: Dr. G. W. Potter, Redfield; Dr. W. J. Benner, Willow Lake; Dr. N. K. Hopkins, Arlington; Dr. H. T. Kenney, Pierre; Dr. C. V. Templeton, Woonsocket; Dr. H. H. Sherwood, Humboldt; Dr. R. P. Frink, Wagner; Dr. F. E. Clough, Lead; and Dr. H. R. Kenaston, Bonesteel.

Resolutions: Dr. T. J. Billions, Sioux Falls; Dr. N. K. Hopkins, Arlington; and Dr. G. W. Potter, Redfield.

Necrology: Dr. D. L. Scanlon, Volga; Dr. Wm. Edwards, Bowdle; Dr. L. G. Hill, Watertown.

Moved by Dr. Roane, and carried, that the House adjourn to the call of the President.

SECOND SESSION—WEDNESDAY, MAY 24TH  
5 P. M.

The House of Delegates was called to order by the President, Dr. J. B. Vaughn, with the following present: Dr. J. B. Vaughn, Castlewood, President; Dr. R. D. Alway, Aberdeen, Secretary; Dr. G. W. Potter, Redfield; Dr. G. H. Twinning, Mobridge; Dr. L. A. Pickering, Aberdeen; Dr. W. J. Benner, Willow Lake; Dr. N. K. Hopkins, Arlington; Dr. I. M. Burnside, Highmore; Dr. C. V. Templeton, Woonsocket; Dr. Guy Ramsey, Salem; Dr. H. H. Sherwood, Humboldt; Dr. R. P. Frink, Wagner; Dr. Wm. Edwards, Bowdle; Dr. H. T. Kenney, Pierre; Dr. L. G. Hill, Watertown; Dr. D. L. Scanlon, Volga; Dr. Frederick Treon, Chamberlain; and Dr. F. E. Clough, Lead.

President Vaughn called attention to the Chamberlain Sanitarium and Hospital, and spoke of certain advertisements that were being carried on by representatives of this institution in the Missouri Valley Health Herald.

Dr. Treon stated that so far as he knew the

two physicians connected with this Sanitarium were ethical.

Dr. Clough moved that the matter be laid upon the table, and left to the discretion of the President and Secretary of the Association to determine whether these representatives conducted themselves ethically in the future or not. Seconded and carried.

In recommending some one to the Governor to succeed Dr. Feigi, Dr. Potter offered the following resolution and moved its adoption:

To the Governor:

The South Dakota State Medical Association, in convention assembled in the city of Aberdeen, May 23-25, 1916, respectfully petition you to appoint one of the following Homeopathic physicians as members of the Board of Health and medical examiners at the expiration of the term of E. W. Feigi: Dr. H. M. Finnerud, Watertown; Dr. J. R. Westaby, Clark; Dr. H. C. Parsons, Watertown; Dr. L. G. Hill, Watertown; Dr. Geo. H. Fulford, Sioux Falls.

The motion was seconded by Dr. Treon, and carried.

Dr. Treon moved that Drs. Kenney, Miller, and Alway be appointed a committee to devise means by which this matter can be brought to the attention of the Governor.

Motion seconded by Dr. Hopkins, and carried; and the committee was empowered to draft any resolution they see fit (with the signatures of the officers of the Association) for presentation to the Governor.

Dr. J. G. Parsons, Sioux Falls, presented his report as chairman of the Committee on Health and Public Instruction, as follows:

#### REPORT OF COMMITTEE ON HEALTH AND PUBLIC INSTRUCTION

To the House of Delegates:

In submitting herewith the report of the Committee on Health and Public Instruction I wish to express my thanks for the confidence shown my colleagues and myself in continuing us in this important work. It is no small responsibility to appear before the public throughout the year as the accredited representatives of the organized medical profession, endeavoring to teach the people certain things regarding health which they should know, and trying to stimulate among them an appreciation of the importance of public health to civic life. Neither is it a small task to perform, even in a limited and imperfect way, the duties which confront this Committee. It has required a considerable amount of work, both mental and physical, and the sacrifice of considerable time. While most of this work has devolved upon me as Chairman, I wish to express my appreciation of the valuable assistance and advice which has been given by the other members of the Committee, and of the increase in co-operation among the members of the district societies.

Briefly stated, the duties incumbent upon this Com-



mittee are those which naturally fall upon reputable physicians everywhere: To give to the public through appropriate means such information as may be needed to enable them to protect themselves from preventable disease; to teach them the importance of demanding the services of adequately supported public-health agencies, and their duty to co-operate with these agencies for the public weal. These duties should be understood by all physicians as a part of what they owe to society, while the especial duty of this Committee is that of leadership.

It is obviously impossible for your Committee to do all the work that needs to be done. We must have the willing co-operation of the members of the District Societies. In each Society there should be an active committee, which will take an active part in enlisting the services of members to do something toward furthering the work. In an effort to get in touch with the the Societies your chairman has attended regular meetings of the Mitchell, Yankton and Lake Preston Societies, and has also met with some of the members of the Aberdeen and Watertown Societies, and talked over some of the methods of getting our propaganda before the public.

As in previous years we have kept in close touch with the teachers of the state, speaking before their conventions and in summer schools and institutes. The South Dakota School Hygiene Association, which we organized three years ago, has increased in membership, so that there are now registered about three hundred teachers, many of them eminent in their profession, whose influence is of great value.

At the last meeting of the State Educational Association a commission was appointed to revise the course of study for the schools of the state, and, as President of the School Hygiene Association, I was asked to co-operate in revising the course on physiology and hygiene. There is an opportunity for accomplishing a great deal in this way, for the present courses and methods are antique and only slightly in touch with modern advances in hygiene. By arrangement with the Superintendent of Public Instruction I prepared a public health placard, setting forth the essentials of the prevention of disease. Several thousand copies of this card have been printed, and will be distributed by the Superintendent, placing one in each school-room in the state.

The County Superintendents have shown an increasing interest in having talks before their institutes and summer schools. In a number of instances addresses have been made before summer schools which represented the combined attendance of teachers from several counties. In this way a considerable economy of time and work are effected.

The subjects presented at these lectures were School Hygiene and Rural Hygiene. The former dealt with the general principles of sanitation as applied to schools, urging teachers to recognize the responsibility which rests upon them. Stress has been laid on practical methods of teaching hygiene to pupils daily, whether in class or not. Rural Hygiene has been discussed several times, pointing out the importance of the rural school as a community center from which should be distributed sanitary information, which is so sadly needed in rural communities. Teachers have shown considerable interest in these talks. Conservation of

Vision has been dealt with in a similar manner. In this work, as Chairman of the Committee on Conservation of Vision, I have had the co-operation of Dr. C. A. Bower, of Mitchell, and Dr. Frank Conger Smith, of Yankton. Dr. Allport, chairman of the American Medical Association committee, compliments the work done as mentioned in our report to him.

As in previous years, we have worked with the Red Cross Seal Commission of the state. In this connection, besides some lectures which were given, we endeavored to arrange for the expansion of the work of this Commission into a State Public Health Association. It will not be possible to accomplish this before another month, when, according to plans now laid, we shall perfect such an organization, modeled along the lines of the Minnesota Public Health Association. The idea is to secure memberships and dues or other contributions from among the influential members of the laity and profession, such as will make it possible to carry on public-health propaganda in a systematic and intensive manner, co-operating with existing agencies and helping to develop public sentiment for their support.

The educational work which is being carried out by the Red Cross Commission through our visiting nurses is of great value. I wish to bespeak for this work, and the sale of the Red Cross Seals, which make it possible, the hearty support of the profession. Nothing does so much good in educating the laity along health lines as to get them interested in helping. Boost the Red Cross Seals next winter.

The Federation of Women's Clubs was addressed by Dr. Smedley at their annual meeting in Flandreau. They have taken a marked interest in the Baby Health Conferences, a number of which were held this spring.

In this connection I wish to state that the American Medical Association has prepared a carefully worked out plan for conducting these Conferences, with which it will be well for our members to become familiar, if they are to have anything to do with them the coming year. There is a tendency for some of the enthusiastic women who are interested in these Baby Conferences to take matters entirely into their own hands, calling upon the doctors to serve as mere examining machines. I would therefore advise that local physicians who are to take part in this work insist that they be conferred with in advance, so they may have a hand in making plans which will obviate the difficulties which are bound to arise if this work is left too much in the hands of the laity.

Having come in frequent contact with a number of college presidents, I have urged the development of Educational Hygiene as a necessary part of a sound education, especially for teachers. The prospects look favorable for improvements in this direction.

In an address before the Life Underwriters' Association I made a plea for their co-operation, as a business policy, in furthering our health propaganda. I especially urged the advisability of their pushing the matter of annual physical examinations among policy holders, as already adopted by some companies.

At a recent meeting of the State Dental Association, I made a short talk asking for their co-operation with our Association in appointing committees on Oral Hygiene. The suggestion was very well received, and we

shall doubtless receive valuable assistance from our dental colleagues in our educational work.

I wish to urge upon all our members the importance of being ready to do their duty in this educational work when needed. More and more the public is asking for these things, and where it has not already been done, especially in smaller places, it is the plain duty of the doctor to get together with the teacher, the preacher, and the club-woman, and plan for at least two or three health talks during the season. Some of the members may have greater facility in speaking than others, and may, to great advantage, be called to neighboring accessible places. For the convenience of those who may not have the time or the material at hand for preparing talks I have had copied some brief outlines of talks on School Hygiene and on Tuberculosis and Colds, which may be had for the asking by any who wish to use them.

This educational work should not only result in teaching people how to protect themselves individually from preventible disease, but it ought to accomplish more. What we need is an intelligent public sentiment which will insist that as citizens and tax-payers the State shall use a reasonable amount of care in protecting them against disease. We have the most inefficient and underpaid Department of Public Health in America. The sum of \$8,000 is the total amount available for all purposes, while, I am told, the stallions of the state get \$16,000 and the fish and game over \$40,000. An effort will be made to get the political parties to declare in favor of an efficient, adequately supported public-health service for this state at their coming conventions.

We must be ready to act upon what advantage we may get from these sources, and I would urge the appointment of a small legislative committee to co-operate with the Committee on Health and Public Instruction for the express purpose of collecting such data as may be necessary to show how modern efficient public-health departments are conducted in other states, and to have available at an early date some definite plan to present to the next legislature.

Reports as to the lecture work done in all the localities have not been received, but the following will indicate the general activity, which has resulted in reaching upward of 6,000 people.

Watertown District—Dr. L. G. Hill, Watertown.

Yankton District—Dr. F. C. Smith, Yankton (2 addresses); Dr. M. Herzberg, Vermillion; Dr. H. J. G. Koobs, Scotland; Dr. R. P. Frink, Geddes and Wagner.

Lake Preston District—Dr. E. B. Taylor, Dr. Leach, Dr. J. L. Foxton, Dr. O. R. Wright (all of Huron).

Mitchell District—Dr. C. A. Bower, Mitchell (4 addresses); Dr. Fred Treon, Chamberlain; B. A. Bobb.

Black Hills District—Dr. F. E. Ashcroft, Deadwood (3 addresses).

Sioux Falls District—Dr. Irene Smedley, Sioux Falls (3 addresses); Dr. S. A. Keller, Dr. W. F. Keller (2 addresses); Dr. G. G. Cottam (3 addresses).

Aberdeen District—Dr. F. J. Kravshaar (4 addresses).

My personal work has involved the delivering of sixteen addresses to an aggregate audience of about 3,800. Eleven of these engagements were out of town, in the following places: Mitchell, Aberdeen, Geddes, Watertown, Lake Preston, Yankton, Tripp, and involved the expenditure of fifteen days' time.

The appropriation of one hundred dollars has been consumed in travelling and clerical expenses. It was not found necessary to run over this amount because of some reimbursements received on some of the trips and because of some of the stenographic work, which was done gratis by high school students. A number of requests for speaking engagements for the coming season have been made.

Your committee feels that the work accomplished, and the good prospects for the future warrant the continuance of the work, and the hearty co-operation of every member of the Association.

Respectfully submitted,

J. G. PARSONS, M. D.,  
Chairman.

Secretary Alway moved that Dr. Parsons be given a vote of thanks by the House of Delegates for the excellent work he had done, and that the report be published in the Transactions of the Association.

Seconded by Dr. Potter, and carried.

The House adjourned to the call of the President.

### THIRD SESSION—THURSDAY, MAY 25TH

The House of Delegates met at 11:55 A. M., and was called to order by President Vaughn, with the following present: Dr. J. B. Vaughn, Castlewood, President; Dr. R. D. Alway, Aberdeen, Secretary; Dr. G. W. Potter, Redfield; Dr. G. H. Twining, Mobridge; Dr. L. A. Pickering, Aberdeen; Dr. W. J. Benner, Willow Lake; Dr. N. K. Hopkins, Arlington; Dr. C. V. Templeton, Woonsocket; Dr. H. H. Sherwood, Humboldt; Dr. R. P. Frink, Wagner; Dr. Wm. Edwards, Bowdle; Dr. H. T. Kenney, Pierre; Dr. L. G. Hill, Watertown; Dr. D. L. Scanlon, Volga; Dr. T. J. Billion, Sioux Falls; and Dr. F. E. Clough, Lead.

Dr. Potter, Chairman of the Nominating Committee, made the following report:

President: Dr. F. M. Crain, Redfield; Dr. Percy Peabody, Webster; and Dr. H. T. Kenney, Pierre.

First Vice-President: Dr. H. J. G. Koobs, Scotland.

Second Vice-President: Dr. D. L. Scanlon, Volga.

Secretary-Treasurer: Dr. R. D. Alway, Aberdeen.

Councilors: First District—Dr. Wm. Edwards, Bowdle; Third District—Dr. N. K. Hopkins, Arlington; Fourth District—Dr. H. T. Kenney, Pierre; Seventh District—Dr. G. G. Cottam, Sioux Falls.



Delegate to A. M. A. Meeting 1917-1918—Dr. Percy Peabody, Webster.

Alternate—Dr. B. H. Sprague, Huron.

Place of Meeting for 1917: Yankton, South Dakota.

Moved and seconded that the report be accepted. Motion carried.

Dr. Hill moved that the Secretary be instructed to cast the unanimous vote for Dr. Crain as President. Seconded by Dr. Kenney and carried.

The Secretary cast the ballot as instructed and Dr. Crain was declared duly elected.

Dr. Potter moved that the Secretary cast the unanimous ballot of the Association for Dr. Koobs as First Vice-President. Seconded and carried.

The Secretary cast the ballot as instructed, and Dr. Koobs was declared duly elected.

Dr. Hill moved that the Secretary be instructed to cast the unanimous ballot of the Association for Dr. Scanlon as Second Vice-President. Seconded by Dr. Kenney and carried.

The ballot was cast by the Secretary as instructed, and Dr. Scanlon was declared duly elected.

Dr. Hill moved that the President cast the unanimous ballot of the Association for Dr. Alway as Secretary-Treasurer. Seconded by Dr. Kenney and carried.

The President thereupon cast the unanimous ballot of the House of Delegates for Dr. Alway as Secretary-Treasurer, and declared him duly elected.

In connection with the District Councilors, it was moved that the Secretary be instructed to cast the ballot of the House of Delegates for the Councilors named. Seconded and carried.

The Secretary cast the ballot as instructed, and the Councilors were declared duly elected.

It was moved and seconded that the Secretary be instructed to cast the ballot of the House of Delegates for Dr. Percy Peabody, Webster, as Delegate and Dr. B. H. Sprague, Huron, as Alternate, to the American Medical Association for 1917-1918. Seconded and carried.

The Secretary cast the ballot as instructed, and they were declared duly elected.

It was moved that the meeting next year be held at Yankton. Seconded and carried.

In pursuance to the request of the First Aid Conference of America, that a First Aid Committee be appointed by this Association, it was

moved by Dr. Clough and carried that the President appoint a First Aid Committee of three.

The President appointed Dr. F. E. Clough, Lead, Chairman; Dr. F. W. Minty, Rapid City; and Dr. B. A. Bobb, Mitchell.

Secretary Alway brought up the matter of issuing a uniform membership card for district secretaries, and suggested that this be done.

Dr. Hill moved that the Secretary be instructed to prepare such a card as he had suggested, and supply the secretaries of the various district societies with them. Seconded and carried.

Secretary Alway called attention to the subject of medical defense.

Dr. Hill pointed out that every State Medical Association, except that of South Dakota, had some kind of medical defense.

Secretary Alway moved that the President appoint a committee of three to formulate a plan for medical defense in connection with the State Association to report at the annual meeting in 1917. Seconded and carried.

The President appointed as members of this Committee Dr. G. G. Cottam, Sioux Falls; Dr. Frederick A. Spafford, Flandreau; and Dr. H. T. Kenney, Pierre.

Secretary Alway directed attention to the present Board of Health law, stating that "no man can become a member of the Board of Health until he has resided in the state five years."

This clause prevents the Board of Health officers from going out of the state and employing an all-time health officer, and suggested the law be amended by the omission of that clause.

Dr. Hill moved that such an amendment as has been suggested by Dr. Alway be recommended to the Legislative Committee. Seconded and carried.

Dr. Spafford spoke briefly of medical legislation, and related what experience he had had with legislators in trying to get measures passed by the Legislature. He said that if there was not concerted action on the part of the medical profession in regard to the enactment of any legislative measure that was desirable, very little could be accomplished. He pointed out and insisted that it was the duty of members of the medical profession to approach members elected to the next legislature, and discuss with them such measures as would benefit the people.

It was moved that the Secretary be instructed to write to Dr. Frederick R. Green, Secretary of the Council on Health and Public Instruction of the American Medical Association, for reprints



of an article by Dr. Green on Medical Legislation, and that a copy of said article be sent to each member of the Legislative Committee. Seconded and carried.

The Committee on Legislation made the following report:

#### REPORT OF THE COMMITTEE ON LEGISLATION

To the House of Delegates of the South Dakota State Medical Association:

Your Committee on Medical Legislation have the honor to herewith present their report. During the 1915 session of the State Legislature, very little was accomplished in the line of medical legislation. A bill was introduced by the Senate Committee on Public Health, the provisions of which, had it become a law, would have permitted counties at their option to have availed themselves of a full-time health officer; this bill was killed on the floor of the Senate. The law governing the control of contagious diseases was amended, giving the State Board of Health authority to appoint any or all reputable physicians deputy health officers under their respective County Boards of Health. The appropriation for the maintenance of the State Board of Health Examiners was increased, although not made large enough to carry on the work efficiently. It was, however, a decided gain over former appropriations. A bill was introduced in the House known as the "Chiropractors Bill," the provisions of which would have granted the chiropractors a board of examiners, thus legalizing another form of quackery. This bill passed the House. On reaching the Senate the bill was referred to the Committee on Public Health, and was held in committee until counsel could be taken and pressure from the physicians could be brought to bear on the members of the Senate. Our Secretary was notified of the condition of affairs, and our committee was called together. It was decided to secure legal advice, and the services of Judge Campbell, of Aberdeen, were secured. The physicians throughout the State were requested to write or wire the Senators from their districts to oppose and work against this bill. By active and vigorous work and the co-operation of the medical profession, the bill was defeated on the floor of the Senate. For its defeat much credit is due Drs. Alway and Kenney, Judge Campbell, and Senator Stephens, of Hughes county.

In conclusion we would say the fight is not over; in fact this was only the opening skirmish of the battle. At this time we believe some steps should be taken to prepare for the contest which will be on at the convening of our next State Legislature, and we recommend that active measures be taken at once.

Respectfully submitted,

F. A. SPAFFORD, M. D.,

E. C. MILLER, M. D.

Moved by Dr. Hopkins, seconded by Dr. Potter and carried, that the report be accepted.

The Committee on Resolutions made the following report:

#### REPORT OF COMMITTEE ON RESOLUTIONS

To the South Dakota State Medical Association:

Your Committee on Resolutions begs leave to report the following:

That the State Medical Association of South Dakota extend to the members of the First District Medical Society and the physicians of Aberdeen its sincere appreciation of their hospitality, courtesies, and general good fellowship extended to us, and for their ability to establish such successful laboratories on such short notice and to fill them with such fine living specimens.

To Dr. Vaughn, our able President, we extend our expression of gratitude for the able manner of conducting the meeting, for his good management of the office during the past year, and for the personal interest he has taken in each member present.

We extend thanks to the Elks Club and the Orpheum Theatre for the use of their rooms, and to the Ladies' Auxiliary for the entertainment given us.

We wish to commend Dr. Alway, Secretary-Treasurer, for his work in keeping the business part of the Association in a prosperous condition, and we thank him for again accepting the position for the coming year.

Respectfully submitted,

T. J. BILLION, M. D.,

N. K. HOPKINS, M. D.,

G. W. POTTER, M. D.

Moved by Dr. Hill, seconded by Dr. Kenney, and carried that the report be accepted.

The Committee on Necrology reported as follows:

#### REPORT OF COMMITTEE ON NECROLOGY

We have lost from our ranks during the past year two of our members, Dr. Charles Edward Weidman, of Cresbard, and Dr. Edward M. Doyle, of Yankton.

Dr. Weidman graduated from the Albany Medical College of New York in 1895, and came to South Dakota in 1908. He died at the age of 46.

Dr. Doyle graduated from the Medical College of the Iowa State University in 1888, and came to South Dakota in 1899.

To the relatives of these, our brother practitioners, we extend our condolences.

Respectfully submitted,

D. L. SCANLON, M. D.,

WM. EDWARDS, M. D.,

L. G. HILL, M. D.

The House adjourned *sine die*.

## Proceedings of the Board of Councilors

FIRST SESSION—TUESDAY, MAY 23d

The Board of Councilors met at the Elks Hall, Aberdeen, 3:30 p. m., Tuesday, May 23d. On roll-call the following responded: Dr. Wm. Edwards, Bowdle, President; Dr. J. B. Vaughn, Castlewood; Dr. R. D. Alway, Aberdeen; Dr. D. L. Scanlon, Volga; Dr. James Roane, Yankton; Dr. F. E. Clough, Lead.

The Secretary presented his financial report, and the President appointed an auditing committee consisting of Drs. F. E. Clough, Lead; D. L. Scanlon, Volga; and Wm. Edwards, Bowdle.

## FINANCIAL REPORT OF THE SECRETARY-TREASURER.

Receipts		
Balance on hand May 15, 1915.....	\$991.74	
May 20, 1915, per capita dues, District No. 7..	30.00	
May 21, 1915, per capita dues, District No. 3..	3.00	
June 23, 1915, per capita dues, District No. 3..	3.00	
July 17, 1915, per capita dues, District No. 3..	3.00	
July 18, 1915, per capita dues, District No. 10..	9.00	
July 27, 1915, per capita dues, District No. 3..	9.00	
Aug. 3, 1915, per capita dues, District No. 3..	6.00	
Aug. 4, 1915, per capita dues, District No. 9..	18.00	
Aug. 11, 1915, per capita dues, District No. 1..	12.00	
Aug. 18, 1915, per capita dues, District No. 8..	3.00	
Aug. 24, 1915, per capita dues, District No. 7..	12.00	
Aug. 26, 1915, per capita dues, District No. 6..	9.00	
Sept. 5, 1915, per capita dues, District No. 3..	9.00	
Sept. 11, 1915, per capita dues, District No. 3..	3.00	
Sept. 20, 1915, per capita dues, District No. 10..	3.00	
Sept. 21, 1915, per capita dues, District No. 3..	3.00	
Sept. 25, 1915, per capita dues, District No. 8..	3.00	
Sept. 26, 1915, per capita dues, District No. 8..	3.00	
Nov. 1, 1915, per capita dues, District No. 6..	15.00	
Jan. 26, 1916, per capita dues, District No. 6..	9.00	
Feb. 23, 1916, per capita dues, District No. 1..	6.00	
March 11, 1916, per capita dues, District No. 1..	3.00	
March 14, 1916, per capita dues, District No. 1..	9.00	
March 23, 1916, per capita dues, District No. 7..	99.00	
March 30, 1916, per capita dues, District No. 3..	87.00	
March 31, 1916, per capita dues, District No. 10..	33.00	
April 1, 1916, per capita dues, District No. 4..	21.00	
April 1, 1916, per capita dues, District No. 8..	144.00	
April 1, 1916, per capita dues, District No. 9..	96.00	
April 2, 1916, per capita dues, District No. 8..	3.00	
April 5, 1916, per capita dues, District No. 8..	3.00	
April 7, 1916, per capita dues, District No. 8..	3.00	
April 9, 1916, per capita dues, District No. 2..	108.00	
April 20, 1916, per capita dues, District No. 6..	123.00	
April 26, 1916, per capita dues, District No. 1..	240.00	
April 26, 1916, per capita dues, District No. 7..	39.00	
April 27, 1916, per capita dues, District No. 4..	6.00	
April 29, 1916, per capita dues, District No. 7..	6.00	
May 7, 1916, per capita dues, District No. 9..	3.00	
May 9, 1916, per capita dues, District No. 7..	9.00	
May 9, 1916, per capita dues, District No. 8..	3.00	
May 11, 1916, per capita dues, District No. 6..	3.00	
Total .....	\$2,203.74	

## Disbursements

May 24, 1915, Warrant No. 1.....	\$56.00
May 24, 1915, Warrant No. 2.....	25.00
May 25, 1915, Warrant No. 3.....	6.90
May 25, 1915, Warrant No. 4.....	18.90
May 25, 1915, Warrant No. 5.....	16.85
May 25, 1915, Warrant No. 6.....	18.40
May 25, 1915, Warrant No. 7.....	50.00
May 25, 1915, Warrant No. 8.....	3.58
May 25, 1915, Warrant No. 9.....	18.40
May 25, 1915, Warrant No. 10.....	5.00
May 25, 1915, Warrant No. 11.....	26.00
May 25, 1915, Warrant No. 12.....	150.00
June 14, 1915, Warrant No. 13.....	166.60

June 28, 1915, Warrant No. 14.....	100.00
July 6, 1915, Warrant No. 15.....	5.00
July 6, 1915, Warrant No. 16.....	25.50
July 24, 1915, Warrant No. 17.....	144.86
Sept. 10, 1915, Warrant No. 18.....	15.50
Nov. 11, 1915, Warrant No. 19.....	2.25
Dec. 11, 1915, Warrant No. 20.....	184.75
March 14, 1916, Warrant No. 21.....	5.25
April 13, 1916, Warrant No. 22.....	29.00
April 18, 1916, Warrant No. 23.....	25.17
May 8, 1916, Warrant No. 24.....	23.75
May 8, 1916, Warrant No. 25.....	8.00
Total .....	\$1,129.66
May 23, 1916, balance cash on hand.....	\$1,074.08

Respectfully submitted,

R. D. ALWAY, M. D.  
Secretary-Treasurer.

The meeting adjourned to the call of the President.

## SECOND SESSION—MAY 25TH

The Board of Councilors was called to order Thursday, May 25th, Dr. Wm. Edwards, Bowdle, presiding. Those present were Dr. Wm. Edwards, Bowdle; Dr. J. B. Vaughn, Castlewood; Dr. R. D. Alway, Aberdeen; Dr. H. T. Kenney, Pierre; Dr. L. G. Hill, Watertown; Dr. T. J. Billion, Sioux Falls; and Dr. F. E. Clough, Lead.

Dr. Clough, chairman of the Auditing Committee, made the following report:

## REPORT OF THE AUDITING COMMITTEE

We, the committee appointed to examine the books of the Secretary-Treasurer, find them correct in every detail.

(Signed)

F. E. CLOUGH, M. D.,  
D. L. SCANLON, M. D.,  
WM. EDWARDS, M. D.

Moved by Dr. Hill, seconded by Dr. Miller, and carried, that the report of the Auditing Committee be accepted as read.

Dr. R. D. Alway made motion that \$50 be allowed for the Delegate to the American Medical Association. Seconded by Dr. Templeton, and carried.

A motion was made by Dr. Vaughn that an appropriation of \$150 for Health and Public Instruction be allowed to carry on that work. Seconded by Dr. Templeton, and carried.

A motion was made by Dr. Hill that a salary of \$150, plus postage of \$30, be allowed Dr. R. D. Alway. Seconded by Dr. Miller, and carried.

On election of officers for the Council for the ensuing year, Dr. Wm. Edwards for President and Dr. H. T. Kenney for Secretary were unanimously chosen.

On motion of Dr. Kenney, seconded by Dr. Alway, the Council adjourned *sine die*.

## DISTRICT AND COUNTY ROSTER

## ABERDEEN DISTRICT MEDICAL SOCIETY—NO. 1

**PRESIDENT**  
Peabody, Percy ..... Webster

**SECRETARY**  
McCauley, C. E. .... Aberdeen  
Adams, B. A. .... Bristol  
Adams, J. F. .... Aberdeen  
Aldrich, H. H. .... Wessington  
Alway, R. D. .... Aberdeen  
Bailey, F. C. .... Redfield  
Baldwin, F. M. .... Redfield  
Bates, W. A. .... Northville  
Bear, H. .... Timber Lake  
Beil, A. .... Selby  
Brosseau, J. E. .... Frankfort  
Brown, A. E. .... Webster  
Bruner, J. E. .... Frederick  
Carpenter, G. S. .... Bowdle  
Carson, D. J. .... Faulkton  
Cook, J. F. D. .... Langford  
Countryman, G. E. .... Aberdeen  
Crain, F. M. .... Redfield  
Creamer, Frank H. .... Dupree  
Curtis, J. E. .... Lemmon  
Diertz, J. J. .... Ashton  
Dinsmore, W. E. .... Claremont  
Dunn, J. E. .... Groton  
Edwards, Wm. .... Bowdle  
Farrell, W. D. .... Aberdeen

Ferguson, W. J. .... Milbank  
Field, L. M. .... Aberdeen  
Flett, Charles ..... Milbank  
Freyberg, F. W. .... Aberdeen  
Gerdes, O. H. .... Eureka  
Glasier, W. F. .... Sisseton  
Harris, H. G. .... Wilmot  
Hart, Robert S. .... Turton  
Herman, H. J. .... Webster  
Herman, J. D. .... Conde  
Hill, Robert ..... Ipswich  
Hoagland, C. C. .... Veblen  
Holmes, A. E. .... Verdon  
Holmes, Chas. F. .... Hecla  
Homan, C. A. .... Aberdeen  
Jackson, E. B. .... Aberdeen  
Jacotel, J. A. .... Milbank  
Jarvis, Abbie ..... Faulkton  
Jenkins, P. B. .... Waubay  
Johnston, M. C. .... Aberdeen  
Jones, R. R. .... Britton  
Kaps, F. O. .... Britton  
Kerns, G. G. .... Leola  
Kettner, J. C. .... Leola  
King, H. I. .... Aberdeen  
Kjerland, T. N. .... Webster  
Kraushaar, F. J. .... Aberdeen  
Kutnewsky, J. K. .... Redfield

Lavery, C. J. .... Aberdeen  
McAdams, J. E. .... Morristown  
Mertens, J. J. .... Gettysburg  
Miller, E. O. .... Aberdeen  
Miller, Frank ..... Aberdeen  
Miller, J. F. .... Andover  
Miller, V. M. .... Mellette  
Mitchell, Fred L. .... Orient  
Morton, G. M. .... New Effington  
Murdy, B. C. .... Aberdeen  
Murdy, R. L. .... Aberdeen  
Murphy, T. W. .... Pierpont  
Olson, C. L. .... Pine Island, Minn  
Olson, C. O. .... Groton  
Pickering, L. A. .... Aberdeen  
Potter, Geo. W. .... Redfield  
Powell, J. W. .... Webster  
Rock, H. J. .... Aberdeen  
Rosenthal, Sigmond ..... Java  
Sampson, I. J. .... Mellette  
Seeman, H. J. .... Rockham  
Sorenson, A. A. .... Aberdeen  
Sutton, Dewey ..... Redfield  
Totten, F. C. .... Lemmon  
Twining, G. H. .... Mobridge  
Van Dalsem, Frieda ..... Huron  
White, W. E. .... Ipswich  
Whiteside, J. D. .... Aberdeen

## WATERTOWN DISTRICT MEDICAL SOCIETY—NO. 2

**PRESIDENT**  
Mullen, R. W. .... Florence  
**SECRETARY**  
Freeburg, H. M. .... Watertown  
Abbott, G. A. .... Watertown  
Ash, James C. .... Garden City  
Bartron, H. J. .... Watertown  
Bates, J. S. .... Clear Lake  
Benner, W. J. .... Willow Lake  
Burleigh, G. H. .... Esteline  
Campbell, R. F. .... Watertown  
Church, E. O. .... Revello  
Crawford, J. H. .... Castlewood

Eddy, J. S. .... Henry  
Edsall, J. L. .... Wallace  
Ely, O. S. .... South St. Paul, Minn  
Finnerud, H. M. .... Watertown  
Giere, E. O. .... Watertown  
Hammond, M. J. .... Watertown  
Haraldson, R. .... Watertown  
Hendricson, Paul ..... Vienna  
Hill, L. G. .... Watertown  
Johnson, A. E. .... Watertown  
Koran, Finn ..... Watertown  
Kriesel, W. A. .... Watertown  
Lockwood, J. H. .... Garden City

Magee, W. G. .... Watertown  
McIntyre, P. S. .... Watertown  
O'Bryan, H. J. .... Watertown  
O'Toole, C. S. .... Watertown  
Parsons, H. C. .... Watertown  
Ramsey, E. T. .... Clark  
Richards, G. H. .... Clear Lake  
Sherwood, H. W. .... Doland  
Smith, S. W. .... Watertown  
Staley, F. H. .... Hazel  
Tarbell, H. A. .... Watertown  
Vaughn, J. B. .... Castlewood  
Williams, C. A. .... Doland

## LAKE PRESTON DISTRICT MEDICAL SOCIETY—NO. 3

**PRESIDENT**  
Grove, E. H. .... Hetland  
**SECRETARY**  
Grosvenor, L. N. .... Huron  
Allison, B. S. .... Lake Preston  
Amsberry, A. L. .... Erwin  
Bailey, N. L. .... Lake Preston  
Baker, J. C. .... Ramona  
Bohl, H. A. .... Madison  
Bostrom, A. E. .... De Smet  
Cowgill, C. H. .... Iroquois  
Crafts, Earl ..... Carthage

Dyar, B. A. .... De Smet  
Fisk, R. R. .... Brookings  
Foster, J. W. .... Aurora  
Frudensfeld, H. H. .... Madison  
Garrison, John F. .... Oldham  
Goldman, E. W. .... Madison  
Green, B. T. .... Brookings  
Hopkins, N. K. .... Arlington  
Leach, W. O. .... Huron  
McKie, J. F. .... Wessington  
Miller, E. C. .... Brookings  
Noble, A. G. .... Howard  
Noble, H. B. .... Howard

Scanlan, D. L. .... Volga  
Schoonmaker, F. H. .... Arlington  
Schwendener, J. E. .... Bryant  
Sheets, O. B. .... Carthage  
Shirley, J. C. .... Huron  
Sprague, B. H. .... Huron  
Taylor, E. B. .... Huron  
Thomas, Benj. .... Huron  
Torwick, E. E. .... Volga  
Westaby, R. S. .... Madison  
Wood, T. J. .... Huron  
Wright, O. R. .... Huron

## PIERRE DISTRICT MEDICAL SOCIETY—NO. 4

**PRESIDENT**  
Langsdale, G. H. .... Highmore  
**SECRETARY**  
Stegeman, S. B. .... Onida

Burnside, I. M. .... Highmore  
Hollister, C. M. .... Pierre  
Kenney, H. T. .... Pierre  
Martin, H. B. .... Harrold

McWhorter, P. W. .... Miller  
Riggs, T. F. .... Pierre  
Walsh, J. M. .... Ft. Pierre  
Youngs, A. H. .... Pierre



## MITCHELL DISTRICT MEDICAL SOCIETY—NO. 6

## PRESIDENT

Hoyne, A. H. .... Salem

## SECRETARY

Gillis, F. D. .... Mitchell  
 Auld, C. V. .... Plankington  
 Ball, W. R. .... Mitchell  
 Benckleman, W. H. .... Stickney  
 Berry, S. G. .... Tyndall  
 Black, Wm. .... Gaylord, Minn.  
 Bobb, B. A. .... Mitchell  
 Bobb, C. S. .... Mitchell  
 Bobb, E. V. .... Mitchell  
 Bower, Chas. A. .... Mitchell  
 Bright, H. F. .... White Lake  
 Buffaloe, A. J. .... Mitchell  
 Burnes, P. E. .... Alpena

Delaney, W. A. .... Mitchell  
 Dunn, A. B. .... Chamberlain  
 Gifford, A. J. .... Alexandria  
 Hartzell, H. W. .... Chamberlain  
 Hofer, A. E. .... Marion  
 Hunt, W. M. .... Draper  
 Jenkinson, H. E. ....  
     ..... Wessington Springs  
 Jones, E. W. .... Mitchell  
 Just, Guy H. .... Pukwana  
 Kammerling, Theo. .... Spencer  
 Kelly, R. A. .... Mitchell  
 Kidd, F. S. .... Woonsocket  
 Kimble, O. A. .... Murdo  
 LaShier, B. W. .... Armour

Maytum, W. J. .... Alexandria  
 McClellan, S. A. .... Kennebeck  
 McManus, Clara .... Centerville  
 Pugh, G. F. .... Stratford  
 Ramsey, Guy .... Salem  
 Reynolds, W. P. .... Lane  
 Rogers, J. C. .... White Lake  
 Shull, J. E. .... Alpena  
 Sprecher, Samuel .... Tripp  
 Stewart, F. H. .... Kimball  
 Stewart, T. M. .... Mitchell  
 Templeton, C. V. .... Woonsocket  
 Treon, Fred. .... Chamberlain  
 Wager, E. N. .... Bijou Hills  
 Waldner, J. L. .... Parkston  
 Young, E. M. .... Plankington

## SIOUX FALLS DISTRICT MEDICAL SOCIETY—NO. 7

## PRESIDENT

Perkins, E. L. .... Sioux Falls

## SECRETARY

Hummer, H. R. .... Canton  
 Barrick, R. G. .... Hudson  
 Billion, T. J. .... Sioux Falls  
 Bliss, G. W. .... Valley Springs  
 Bliss, P. D. .... Colton  
 Bower, C. F. .... Hartford  
 Brandon, P. E. .... Sioux Falls  
 Brown, S. A. .... Sioux Falls  
 Butler, C. A. .... Dell Rapids  
 Clark, J. C. .... Sioux Falls  
 Cottam, G. G. .... Sioux Falls  
 Craig, D. W. .... Sioux Falls  
 Culver, C. F. .... Sioux Falls  
 Devall, F. C. .... Garretson  
 Dickenson, W. C. .... Canastota  
 Donahoe, S. A. .... Sioux Falls  
 Donahoe, W. E. .... Sioux Falls  
 Eagan, J. B. .... Dell Rapids

Egan, M. H. .... Sioux Falls  
 Gage, E. E. .... Sioux Falls  
 Grove, A. F. .... Dell Rapids  
 Grove, M. M. .... Dell Rapids  
 Gulbrandson, G. H. .... Canton  
 Housman, W. McK. Dell Rapids  
 Hyden, A. .... Alcester  
 Jones, E. A. D. .... Sioux Falls  
 Jones, T. E. .... Sioux Falls  
 Jordan, A. A. .... Hudson  
 Joyce, E. .... Hurley  
 Keller, S. A. .... Sioux Falls  
 Keller, W. F. .... Sioux Falls  
 Klaveness, E. .... Sioux Falls  
 Moore, W. E. .... Sioux Falls  
 Nessa, N. J. .... Sioux Falls  
 Parke, L. L. .... Canton  
 Parsons, J. G. .... Sioux Falls  
 Price, E. F. .... Alcester  
 Putnam, E. D. .... Sioux Falls  
 Putnam, F. I. .... Sioux Falls  
 Reagan, R. .... Garretson

Rider, A. S. .... Flandreau  
 Robb, H. J. .... Belleville, Mich.  
 Roberts, T. S. .... Long Beach Cal.  
 Roberts, W. P. .... Sioux Falls  
 Rundlett, D. L. .... Sioux Falls  
 Schwartz, Jos. .... Sioux Falls  
 Sherwood, H. H. .... Humbolt  
 Skogen, T. T. .... Flandreau  
 Smedley, Irene. .... Sioux Falls  
 Spafford, F. A. .... Flandreau  
 Stern, M. A. .... Sioux Falls  
 Stevens, R. G. .... Sioux Falls  
 Subera, H. W. .... Sioux Falls  
 Trail, C. J. .... Sioux Falls  
 Tufts, A. H. .... Sioux Falls  
 Valkenaar, F. W. .... Chancellor  
 Van Demark, G. E. .... Sioux Falls  
 Wildish, R. M. .... Graceville, Minn.  
 Young, S. A. .... Lennox  
 Zetlitz, K. .... Sioux Falls  
 Zimmerman, Goldie. .... Sioux Falls

## YANKTON DISTRICT MEDICAL SOCIETY—NO. 8

## PRESIDENT

Herzberg, Mortimer. Vermillion

## SECRETARY

Roane, James. .... Yankton  
 Adams, G. S. .... Yankton  
 Anderson, E. T. .... Platte  
 Anderson, T. C. .... Volin  
 Augspurger, E. D. .... Menno  
 Beall, L. F. .... Irene  
 Bigler, Lottie G. .... Armour  
 Blezek, F. M. .... Tabor  
 Burkland, P. R. .... Vermillion  
 Bushnell, Wm. F. .... Elk Point  
 Campbell, C. A. .... Wagner  
 Collisi Nicolas .... Vermillion  
 Cruickshank, Thos. .... Vermillion  
 Duguid, J. O. .... Springfield  
 Eagon, Alonzo .... Yale

Elliott, A. V. .... Beresford  
 Ellis, John .... Elk Point  
 Eyman, E. V. .... Yankton  
 Frink, R. P. .... Wagner  
 Greenfield, J. C. .... Avon  
 Gross, C. C. .... Yankton  
 Hohf, J. A. .... Yankton  
 Hohf, S. M. .... Yankton  
 Isaac, J. P. .... Freeman  
 Kalayjian, D. S. .... Parker  
 Kaufmann, E. J. .... Marion  
 Keeling, C. M. .... Springfield  
 Klima, Hermanigald. .... Tyndall  
 Koobs, H. J. G. .... Scotland  
 Landmann, G. A. .... Scotland  
 Langley, C. S. .... Lake Andes  
 Mead, L. C. .... Yankton  
 Moore, D. V. .... Yankton

Moore, F. A. .... Lesterville  
 Morehouse, E. M. .... Yankton  
 Murphy, Jennie C. .... Yankton  
 Newby, H. D. .... Parker  
 Payne, R. H. .... Tripp  
 Pinard, P. H. A. .... Jefferson  
 Pinard, P. R. .... Wagner  
 Posthuma, Anne .... Centerville  
 Seapy, J. A. .... Geddes  
 Sedlacek, F. A. .... Omaha, Neb.  
 Smith, F. C. .... Yankton  
 Stansbury, E. M. .... Vermillion  
 Stewart, J. L. .... Spearfish  
 Struble, A. J. .... Centerville  
 Swezey, F. A. .... Wakonda  
 Toohey, A. F. .... Beresford  
 Willhite, F. V. .... Yankton  
 Wipf, A. A. .... Freeman

## BLACK HILLS DISTRICT MEDICAL SOCIETY—NO. 9

## PRESIDENT

Clough, F. E. .... Lead

## SECRETARY

Richards, F. A. .... Whitewood

Allen, A. G. .... Deadwood  
 Ashcroft, F. E. .... Deadwood  
 Bilger, Frank, W. .... Ardmore  
 Brooks, J. D. .... Sturgis

Chassell, J. L. .... Belle Fourche  
 Crane, H. L. .... Lead  
 Fleeger, R. B. .... Lead  
 Freeman, J. W. .... Lead

Hare, Lyle .....Spearfish  
 Hargens, C. W. ....Hot Springs  
 Hills, W. C. ....Newell  
 Howe, F. S. ....Deadwood  
 Hultz, Eugena.....Hill City  
 Ince, J. T. ....Rapid City  
 Jackson, R. J. ....Rapid City  
 Jackson, A. S. ....Lead

Jennings, R. D ....Hot Springs  
 Koenigsberger, Chas. ....Lead  
 Loyd, C. L. ....Belle Fourche  
 Lybyer, P. C. ..Putnamville, Ind.  
 McLaurin, A. A.....Rapid City  
 Markel, I. J. ....Lead  
 Martin, J. H. ....Lead

Minty, F. W. ....Rapid City  
 Moffit, T. W. ....Deadwood  
 Northrup, F. A. ....Interior  
 Owens, N. T. ....Nemo  
 Pemberton, M. O. ....Deadwood  
 Schneerer, F. B. ....Deadwood  
 Wilcox, H. H. ....Hot Springs  
 Woodworth, R. E. ....Custer

## ROSEBUD DISTRICT MEDICAL SOCIETY—NO. 10

PRESIDENT  
 Kenaston, H. R. ....Bonesteel  
 SECRETARY  
 Bryant, F. A. ....Herrick

Claggett, M. H. ....Fairfax  
 Kindall, A. P. ....Colome  
 Miller, J. L. ....Winner  
 Murnan, H. A. ....Gregory  
 Overton, R. V. ....Dixon

Quinn, R. J. ....Burke  
 Swett, Chas. H. ....Winner  
 Waterman, J. C. ....Burke  
 Winsett, W. E. ....Dallas

## ALPHABETICAL ROSTER

Abbott, G. A. ....Watertown  
 Adams, B. A. ....Bristol  
 Adams, G. S. ....Yankton  
 Adams, J. F. ....Aberdeen  
 Aldrich, H. H. ....Wessington  
 Allen, A. G. ....Deadwood  
 Allison, B. S. ....Lake Preston  
 Alway, R. D. ....Aberdeen  
 Amsberry, A. L. ....Erwin  
 Anderson, E. T. ....Platte  
 Anderson, T. C. ....Volin  
 Ash, James C. ....Garden City  
 Ashcroft, F. E. ....Deadwood  
 Augspurger, E. D. ....Menno  
 Auld, C. V. ....Plankinton  
 Bailey, F. C. ....Redfield  
 Bailey, N. L. ....Lake Preston  
 Baker, J. C. ....Ramona  
 Baldwin, F. M. ....Redfield  
 Ball, W. R. ....Mitchell  
 Barrick, R. G. ....Hudson  
 Barrton, H. J. ....Watertown  
 Bates, J. S. ....Clear Lake  
 Bates, W. A. ....Northville  
 Beall, L. F. ....Irene  
 Bear, H. ....Timber Lake  
 Beil, A. ....Selby  
 Benckleman, W. H. ....Stickney  
 Benner, W. J. ....Willow Lake  
 Berry, S. G. ....Tyndall  
 Bigler, Lottie G. ....Armour  
 Bilger, Frank, W. ....Ardmore  
 Billion, T. J. ....Sioux Falls  
 Black, Wm. ....Gaylord, Minn.  
 Blezek, F. M. ....Tabor  
 Bliss, G. W. ....Valley Springs  
 Bliss, P. D. ....Colton  
 Bohl, B. A. ....Mitchell  
 Bobb, Clyde S. ....Mitchell  
 Bobb, E. V. ....Mitchell  
 Bohl, H. A. ....Madison  
 Bostrom, A. E. ....De Smet  
 Bower, Chas. A. ....Mitchell  
 Bower, C. F. ....Hartford  
 Brandon, P. E. ....Sioux Falls  
 Bright, H. F. ....White Lake  
 Brooks, J. D. ....Sturgis  
 Brosseau, J. E. ....Frankfort  
 Brown, A. E. ....Webster  
 Brown, S. A. ....Sioux Falls

Bruner, J. E. ....Frederick  
 Bryant, F. A. ....Herrick  
 Buffaloe, A. J. ....Mitchell  
 Burkland, P. R. ....Vermillion  
 Burleigh, G. H. ....Esteline  
 Burnes, P. E. ....Alpena  
 Burnside, I. M. ....Highmore  
 Bushnell, Wm. F. ....Elk Point  
 Butler, C. A. ....Dell Rapids  
 Campbell, C. A. ....Wagner  
 Campbell, R. F. ....Watertown  
 Carpenter, G. S. ....Bowdle  
 Carson, D. J. ....Faulkton  
 Chassell, J. L. ....Belle Fourche  
 Church, E. O. ....Revell  
 Claggett, M. H. ....Fairfax  
 Clark, J. C. ....Sioux Falls  
 Clough, F. E. ....Lead  
 Collisi Nicolas ....Vermillion  
 Cook, J. F. D. ....Langford  
 Cottam, G. G. ....Sioux Falls  
 Countryman, G. E. ....Aberdeen  
 Cowgill, C. H. ....Iroquois  
 Crafts, Earl ....Carthage  
 Craig, D. W. ....Sioux Falls  
 Crain, F. M. ....Redfield  
 Crane, H. L. ....Lead  
 Crawford, J. H. ....Castlewood  
 Creamer, F. H. ....Dupree  
 Cruickshank, Thos. ....Vermillion  
 Culver, C. F. ....Sioux Falls  
 Curtis, J. E. ....Lemmon  
 Delaney, W. A. ....Mitchell  
 Devall, F. C. ....Garretson  
 Dickenson, W. C. ....Canastota  
 Diertz, J. J. ....Ashton  
 Dinsmore, W. E. ....Claremont  
 Donahoe, S. A. ....Sioux Falls  
 Donahoe, W. E. ....Sioux Falls  
 Duguid, J. O. ....Springfield  
 Dunn, A. B. ....Chamberlain  
 Dunn, J. E. ....Groton  
 Dyar, B. A. ....De Smet  
 Eagan, J. B. ....Dell Rapids  
 Eagon, Alonzo ....Yale  
 Eddy, J. S. ....Henry  
 Edsall, J. L. ....Wallace  
 Edwards, Wm. ....Bowdle  
 Egan, M. H. ....Sioux Falls  
 Elliott, A. V. ....Beresford

Ellis, John ....Elk Point  
 Ely, O. S. ....South St. Paul, Minn  
 Eyman, E. V. ....Yankton  
 Farrell, W. D. ....Aberdeen  
 Ferguson, W. J. ....Milbank  
 Field, L. M. ....Aberdeen  
 Finnerud, H. M. ....Watertown  
 Fisk, R. R. ....Brookings  
 Fleeger, R. B. ....Lead  
 Flett, Charles ....Milbank  
 Foster, J. W. ....Aurora  
 Freeman, J. W. ....Lead  
 Freeburg, H. M. ....Watertown  
 Freyberg, F. W. ....Aberdeen  
 Frink, R. P. ....Wagner  
 Frudenfeld, H. H. ....Madison  
 Gage, E. E. ....Sioux Falls  
 Garrison, John F. ....Oldham  
 Gerdes, O. H. ....Eureka  
 Giere, E. O. ....Watertown  
 Gifford, A. J. ....Alexandria  
 Gillis, F. D. ....Mitchell  
 Glasier, W. F. ....Sisseton  
 Goldman, E. W. ....Madison  
 Green, B. T. ....Brookings  
 Greenfield, J. C. ....Avon  
 Gross, C. C. ....Yankton  
 Grosvenor, L. N. ....Huron  
 Grove, A. F. ....Dell Rapids  
 Grove, E. H. ....Hetland  
 Grove, M. M. ....Dell Rapids  
 Gulbrandson, G. H. ....Canton  
 Hammond, M. J. ....Watertown  
 Haraldson, R. ....Watertown  
 Hare, Lyle ....Spearfish  
 Hargens, C. W. ....Hot Springs  
 Harris, H. G. ....Wilmot  
 Hart, Robert S. ....Turton  
 Hartzell, H. W. ....Chamberlain  
 Hendricson, Paul. ....Vienna  
 Herman, H. J. ....Webster  
 Herman, J. D. ....Conde  
 Herzberg, Mortimer. ....Vermillion  
 Hill, L. G. ....Watertown  
 Hill, Robert ....Ipswich  
 Hills, W. C. ....Newell  
 Hoagland, C. C. ....Veblen  
 Hofer, A. E. ....Marion  
 Hohf, J. A. ....Yankton  
 Hohf, S. M. ....Yankton

Hollister, C. M. .... Pierre  
 Holmes, A. E. .... Verdon  
 Holmes, Chas. F. .... Hecla  
 Homan, C. A. .... Aberdeen  
 Hopkins, N. K. .... Arlington  
 Howe, F. S. .... Deadwood  
 Hoyne, A. H. .... Salem  
 Housman, W. McK. .... Dell Rapids  
 Hultz, Eugena. .... Hill City  
 Hummer, H. R. .... Canton  
 Hunt, W. M. .... Draper  
 Hyden, A. .... Alcester  
 Ince, J. T. .... Rapid City  
 Isaac, J. P. .... Freeman  
 Jackson, A. S. .... Lead  
 Jackson, E. B. .... Aberdeen  
 Jackson, R. J. .... Rapid City  
 Jacotel, J. A. .... Milbank  
 Jarvis, Abbie. .... Faulkton  
 Jenkins, P. B. .... Waubay  
 Jenkinson, H. E. ....  
     Wessington Springs  
 Jennings, R. D. .... Hot Springs  
 Johnson, A. E. .... Watertown  
 Johnston, M. C. .... Aberdeen  
 Jones, E. A. D. .... Sioux Falls  
 Jones, E. W. .... Mitchell  
 Jones, R. R. .... Britton  
 Jones, T. E. .... Sioux Falls  
 Jordan, A. A. .... Hudson  
 Joyce, E. .... Hurley  
 Just, Guy H. .... Pukwana  
 Kalayjian, D. S. .... Parker  
 Kammerling, Theo. .... Spencer  
 Kaps, F. O. .... Britton  
 Kaufmann, E. J. .... Marion  
 Keeling, C. M. .... Springfield  
 Keller, S. A. .... Sioux Falls  
 Keller, W. F. .... Sioux Falls  
 Kelly, R. A. .... Mitchell  
 Kenaston, H. R. .... Bonesteel  
 Kenney, H. T. .... Pierre  
 Kerns, G. G. .... Leola  
 Kettner, J. C. .... Leola  
 Kidd, F. S. .... Woonsocket  
 Kimble, O. A. .... Murdo  
 Kindall, A. P. .... Colome  
 King, H. I. .... Aberdeen  
 Kjerland, T. N. .... Webster  
 Klaveness, E. .... Sioux Falls  
 Klima, Hermanigald. .... Tyndall  
 Koenigsberger, Chas. .... Lead  
 Koobs, H. J. G. .... Scotland  
 Koran, Finn. .... Watertown  
 Kraushaar, F. J. .... Aberdeen  
 Kriesel, W. A. .... Watertown  
 Kutnewsky, J. K. .... Redfield  
 Landmann, G. A. .... Scotland  
 Langley, C. S. .... Lake Andes  
 Langsdale, G. H. .... Highmore  
 LaShier, B. W. .... Armour  
 Lavery, C. J. .... Aberdeen  
 Leach, W. O. .... Huron  
 Lockwood, J. H. .... Garden City  
 Loyd, C. L. .... Belle Fourche  
 Lybyer, P. C. .... Putnamville, Ind.  
 Magee, W. G. .... Watertown  
 Markel, I. J. .... Lead  
 Martin, H. B. .... Harrold  
 Martin, J. H. .... Lead  
 Maytum, W. J. .... Alexandria  
 McAdams, J. E. .... Morrystown

McCauley, C. E. .... Aberdeen  
 McClellan, S. A. .... Kennebeck  
 McIntyre, P. S. .... Watertown  
 McKie, J. F. .... Wessington  
 McLaurin, A. A. .... Rapid City  
 McManus, Clara. .... Centerville  
 McWhorter, P. W. .... Miller  
 Mead, L. C. .... Yankton  
 Mertens, J. J. .... Gettysburg  
 Miller, E. C. .... Brookings  
 Miller, E. O. .... Aberdeen  
 Miller, Frank. .... Aberdeen  
 Miller, J. F. .... Andover  
 Miller, J. L. .... Winner  
 Miller, V. M. .... Mellette  
 Minty, F. W. .... Rapid City  
 Mitchell, Fred L. .... Crient  
 Moffit, T. W. .... Deadwood  
 Moore, D. V. .... Yankton  
 Moore, F. A. .... Lesterville  
 Moore, W. E. .... Sioux Falls  
 Morehouse, E. M. .... Yankton  
 Morton, G. M. .... New Effington  
 Mullen, R. W. .... Florence  
 Murdy, B. C. .... Aberdeen  
 Murdy, R. L. .... Aberdeen  
 Murphy, T. W. .... Pierpont  
 Murnan, H. A. .... Gregory  
 Murphy, Jennie C. .... Yankton  
 Nessa, N. J. .... Sioux Falls  
 Newby, H. D. .... Parker  
 Noble, A. G. .... Howard  
 Noble, H. B. .... Howard  
 Northrup, F. A. .... Interior  
 O'Bryan, H. J. .... Watertown  
 O'Toole, C. S. .... Watertown  
 Olson, C. L. .... Pine Island, Minn  
 Olson, C. O. .... Groton  
 Overton, R. V. .... Dixon  
 Owens, N. T. .... Nemo  
 Parke, L. L. .... Canton  
 Parsons, H. C. .... Watertown  
 Parsons, J. G. .... Sioux Falls  
 Payne, R. H. .... Tripp  
 Peabody, Percy. .... Webster  
 Pemberton, M. O. .... Deadwood  
 Perkins, E. L. .... Sioux Falls  
 Pickering, L. A. .... Aberdeen  
 Pinard, P. H. A. .... Jefferson  
 Pinard, P. R. .... Wagner  
 Potter, Geo. W. .... Redfield  
 Posthuma, Anne. .... Centerville  
 Powell, J. W. .... Webster  
 Price, E. F. .... Alcester  
 Pugh, G. F. .... Stratford  
 Putnam, E. D. .... Sioux Falls  
 Putnam, F. I. .... Sioux Falls  
 Quinn, R. J. .... Burke  
 Ramsey, E. T. .... Clark  
 Ramsey, Guy. .... Salem  
 Reagan, R. .... Garretson  
 Reynolds, W. P. .... Lane  
 Richards, G. H. .... Clear Lake  
 Richards, F. A. .... Whitewood  
 Rider, A. S. .... Flandreau  
 Riggs, T. F. .... Pierre  
 Roane, James. .... Yankton  
 Robb, H. J. .... Belleville, Mich.  
 Roberts, T. S. .... Long Beach Cal.  
 Roberts, W. P. .... Sioux Falls  
 Rock, H. J. .... Aberdeen  
 Rogers, J. C. .... White Lake  
 Rosenthal, Sigmond. .... Java

Rundlett, D. L. .... Sioux Falls  
 Sampson, I. J. .... Mellette  
 Scanlan, D. L. .... Volga  
 Schneerer, F. B. .... Deadwood  
 Schoonmaker, F. H. .... Arlington  
 Schwartz, Jos. .... Sioux Falls  
 Schwendener, J. E. .... Bryant  
 Seapy, J. A. .... Geddes  
 Sedlacek, F. A. .... Omaha, Neb  
 Seeman, H. J. .... Rockham  
 Sheets, O. B. .... Carthage  
 Sherwood, H. H. .... Humbolt  
 Sherwood, H. W. .... Doland  
 Shirley, J. C. .... Huron  
 Shull, J. E. .... Alpena  
 Skogen, T. T. .... Flandreau  
 Sorenson, A. A. .... Aberdeen  
 Smedley, Irene. .... Sioux Falls  
 Smith, F. C. .... Yankton  
 Smith, S. W. .... Watertown  
 Spafford, F. A. .... Flandreau  
 Sprague, B. H. .... Huron  
 Sprecher, Samuel. .... Tripp  
 Staley, F. H. .... Hazel  
 Stansbury, E. M. .... Vermillion  
 Stegeman, S. B. .... Onida  
 Stern, M. A. .... Sioux Falls  
 Stevens, R. G. .... Sioux Falls  
 Stewart, F. H. .... Kimball  
 Stewart, J. L. .... Spearfish  
 Stewart, T. M. .... Mitchell  
 Struble, A. J. .... Centerville  
 Subera, H. W. .... Sioux Falls  
 Sutton, Dewey. .... Redfield  
 Swett, Chas. H. .... Winner  
 Swezey, F. A. .... Wakonda  
 Tarbell, H. A. .... Watertown  
 Taylor, E. B. .... Huron  
 Templeton, C. V. .... Woonsocket  
 Thomas, Benj. .... Huron  
 Tookey, A. F. .... Beresford  
 Torwick, E. E. .... Volga  
 Totten, F. C. .... Lemmon  
 Trail, C. J. .... Sioux Falls  
 Treon, Fred. .... Chamberlain  
 Tufts, A. H. .... Sioux Falls  
 Twining, G. H. .... Mobridge  
 Valkenaar, F. W. .... Chancellor  
 Van Dalsem, Frieda. .... Huron  
 Van Demark, G. E. .... Sioux Falls  
 Vaughn, J. B. .... Castlewood  
 Wager, E. N. .... Bijou Hills  
 Waldner, J. L. .... Parkston  
 Walsh, J. M. .... Ft. Pierre  
 Waterman, J. C. .... Burke  
 Westaby, R. S. .... Madison  
 White, W. E. .... Ipswich  
 Whiteside, J. D. .... Aberdeen  
 Wilcox, H. H. .... Hot Springs  
 Wildish, R. M. .... Graceville, Minn  
 Willhite, F. V. .... Yankton  
 Williams, C. A. .... Doland  
 Winsett, W. E. .... Dallas  
 Wipf, A. A. .... Freeman  
 Wood, T. J. .... Huron  
 Woodworth, R. E. .... Custer  
 Wright, O. R. .... Huron  
 Youngs, A. H. .... Pierre  
 Young, E. M. .... Plankinton  
 Young, S. A. .... Lennox  
 Zetlitz, K. .... Sioux Falls  
 Zimmerman, Goldie. .... Sioux Falls



## PRESIDENT'S ADDRESS

By J. B. VAUGHN, M. D.

CASTLEWOOD, SOUTH DAKOTA

*Fellow Members of the South Dakota State Medical Association:*

Accept, please, my heartfelt appreciation for the honor you have conferred upon me by electing me to preside over this body for the past year,—a position too honorable to be sought, or lightly regarded when voluntarily bestowed.

In comparing medical men of the present with those of a few years ago we are filled with righteous pride and enthusiasm over belonging to a progressive profession; and we are induced and encouraged to become better physicians and surgeons, thus advancing the work of benefiting mankind.

In an address of this kind, one is at loss to know what is timely. Fully realizing the sheer folly of attempting to tread in unfrequented paths of medicine or surgery, or to enter into flights of fancy in unexplored regions, I have nothing new to offer, and shall remain within the limits of the practical, and, at the risk of seeming tedious, shall make a few suggestions along lines too commonplace and familiar to receive the attention their importance justifies.

Year after year, at our meetings, we see the familiar faces of faithful attendants, with a few recruits each year. Your presence proves interest in your work and the desire to take something away which will increase efficiency in the performance of your duties.

Our program may not give you much that is new, but should the diversion succeed in causing you to forget, for the time, the worries of your daily life, in mingling with your brother practitioners on common ground, man to man, socially and professionally—if new ideas are derived as the result of this communion, we shall feel that the meeting has not been in vain. Contact with various minds broadens the vision, and places us in happier relations with our neighbors and ourselves.

Our medical societies are our postgraduate schools, clubs, and clearing-houses, through which we become better informed, not only in medical matters, but in regard to mankind in general. Viewing our neighbor practitioner from a different angle, we find he is not so bad as we thought, and conclude that our own selves may have been the factor causing unfriendly relations.

An inventory of our stock, after adjournment, may result in a clearer conception of our value.

A physician living by himself, alone in the profession, as many practitioners do, becomes the victim of his limited sphere, growing self-centered, selfish, unjust, and unkind to his neighbor and brother practitioner. Country doctors, the class to which the majority of us in this state belong, are more liable to suffer on this account. As a rule, we are isolated in the work to the extent that we become autocrats, and acquire the exaggerated ego. The specific treatment for these ailments is the medical societies, local, state, and national. In these assemblies we meet our equals and superiors,—men who are able to give us something that will stick to the bone.

By attending societies a broad fraternal spirit is cultivated. In lunching and dining together, geniality triumphs over formality. Rubbing elbows, we exchange ideas on social, business, and fraternal subjects. Thus, we become better acquainted with our neighbors and ourselves. Our more accomplished brethren give us the benefit of their wisdom and experience, for the asking,—and often without the asking. Man is naturally a gregarious animal, and there is something radically wrong with one who does not enjoy association with his kind.

In all industries greater stress is being placed on the union of forces; there is a wider division of labor every day, so that for one to succeed in this industrial world he should not only be conversant with modern methods, but have the entire machinery in operation with competent forces in all departments.

Without thorough equipment in industrial pursuits, undoubtedly a man alone is doomed to failure. The medical world furnishes a parallel with the lone physician struggling single handed; thus handicapped he cannot do skillful, effective work. The assistance of his brother practitioners is indispensable. In union there is strength; and the strength of the co-operation of the entire medical world should be combined.

Considering what might be accomplished by the complete organization of medical forces our spirits should groan within us over the fact that harmony and good fellowship does not prevail among physicians. It is our weak point. This dissension confuses the laity, blocks legislation,

and gives to charlatans and venders of nostrums the opportunity to prey upon their victims. Since the union of forces can be accomplished only through medical societies, let us hope soon to have within our fold at least 90 per cent of the practicing physicians of our state. This seems possible. Only a few years ago the state membership was discouragingly slim. At present more than half of the practicing physicians of the state are members of the State Association. Of the 600 practicing physicians in the state, at least 350 are members of the Association, and the attendance at our annual meeting increases yearly. We may well congratulate ourselves over the progress made, yet we must regret that it has not been greater.

The medical society needs the aid of the outsider, and the outsider needs the aid of the society. It will increase his capacity and operating force; each will assist the other, and the combination will form a mutual benefit society.

With 80 or 90 per cent of our profession imbued with the fraternal spirit we could move as a vast army. Medical legislation would be passed for the prevention of disease, and its phenomenal spread would be checked. With this union, co-operation, and good fellowship we could launch forth with our slogan, "Prevention of Disease," and make vast inroads on our enemies,—tuberculosis, cancer, syphilis, typhoid fever, malaria, and all infectious diseases and all unsanitary conditions.

The day of prevention is at hand. The ounce of prevention proverb is in keeping with the age. The laity is not only asking for treatment while ill, but is demanding to be kept from becoming so.

Each year we have appalling statistics relative to the white plague. Every one of us continues the writing of death certificates of this dreadful disease. We see children, adults, and the aged afflicted, yet we are doing little to stem the mighty tide. We know that infants and children with tubercular joints, spines, lungs, and other organs of the body, did not become affected spontaneously. Upon inquiry it is found that these children have lived in homes where the disease prevailed, or they have been closely associated with tubercular subjects.

Is there not some way to prevent children who are so very susceptible to this disease from associating with the afflicted? And not only to prevent immediate infection, but is there not some means to diminish the chances of the disease de-

veloping from seeds that have lain dormant for years? To sustain the latter point, which is indorsed by many leading authorities, we refer to the statement of Dr. Wallgren, that consumption which develops in adults has usually begun during childhood with an infection. An idea put forth by von Behring has just received confirmation by a test made by Dr. Wallgren at the pulmonary clinic at Upsala. Dr. Wallgren compares one hundred consumptives with one hundred healthy persons as to their exposure during childhood to obvious opportunities for infection from tuberculosis associates, taking only such cases as could be shown definitely to have been "in intimate contact with some one coughing from chronic pulmonary disease, which in all probability was pulmonary or laryngeal tuberculosis." Of the one hundred consumptives fifty-one gave evidence of contact in childhood with tuberculosis associates, whereas among the healthy persons such contact was found in only thirteen. Of the fifty-one consumptives the exposure had been in the first five years of life, whereas in the thirteen healthy persons in but one case had the exposure been before the sixth year. This is cited in support of Pollak's statement that the earlier the infection the more serious the outcome.

If an early diagnosis of this disease is made, the chance for effective treatment is excellent, and contamination of others may be prevented.

In 1898 one man out of five who enlisted in the United States army became a victim of typhoid fever. Immunization during the past few years has entirely banished the disease from the army. From a practical standpoint the question confronts us, who should be immunized? Dr. W. A. Evans sums it up thus: "All nurses and doctors in general hospitals, traveling men, railroad men, and all who travel much. Inhabitants of small towns and villages. People who live in cities or sections of cities where typhoid prevails. All those who live in cities where the typhoid rate is over 30. Typhoid can be prevented, but vigilance is the price, and one must pay."

Within recent years many of the obscure diseases, including the so-called "rheumatic affections," have been definitely traced to focal points of infection in remote parts of the body. The sinuses and cavities about the nose, mouth, and throat have contributed bountifully to these ailments; the faucial tonsils alone have the distinction of being the points of infection in about 65 per cent of the cases. If we are to prevent

disease it is necessary to cleanse or eradicate these points of infection.

For years surgeons have tried to impress upon the medical profession in general the supreme importance of early recognition of cancer; yet, regardless of this agitation, it is to be regretted that they are not so keen towards an early diagnosis as they should be. In many instances malignancy has taken hold so violently before the patient reaches the surgeon that the operation is not a life-saver.

I believe that medical men should never miss an opportunity to sound a note of warning of this disease, in churches, schools, and women's clubs. Girls and women should be informed of the danger of the slightest growth, especially about the mammary glands, and that early treatment is their only salvation.

Malaria and yellow fever are not of so much concern to us in this state, but a glance, in passing, is interesting to know what has been done along lines preventive of this disease. Many infested cities have been made healthful by draining swamps and demolishing breeding-places of the pestilential mosquito. Gorgas not only made the construction of the Panama Canal possible, but by these methods he transformed the zone into a pleasant place in which to live.

Bas, a bacteriologist, goes further in the matter of prevention. He has taken one of the worst malarial districts in Mississippi, and with trained assistants has canvassed it and located every malarial subject, and he proposes to cure them. If he succeeds the mosquito will have no plasma to distribute, and infection will be impossible.

The common house-fly as a disseminator of disease, has been prominent since the Spanish-American war, yet it does not occupy the lofty seat to which it is entitled. In support of this statement, I offer observations made by Armstrong in New York in 1913: "One area inhabited by 311 families or 1,725 individuals, and containing 362 children under the age of five years, was selected. In this area every effort was made to eliminate the house-fly and to prevent its contact with filth and food. In another area containing the same number of families observations were made under the usual unsanitary conditions. The fly campaign was carried out by nurses in order to educate the mothers, both by word of mouth and by frequent distribution of literature and free tickets to a moving-picture theatre where an antily picture film was shown.

All of the doors and windows of the area were carefully screened, and, under the auspices of the Boy Scout Association, large fly-traps were placed in courtways, yards, and stables. In the protected district there were twenty cases of diarrheal disturbances, while in the outside district there were fifty-seven, or a ratio of nearly 1 to 3. The total number of sick days from diarrheal diseases among infants in the protected area was 362, while among those of the outside families the number was 984. The conditions in both areas with the exception of the fly campaign were practically the same. It is possible that, in eliminating the flies, the general sanitary condition was improved at the same time. These figures were, of course, derived from a very small number of people, and the conclusions that one would draw are not by any means conclusive and yet it would seem to point to the fact that the fly plays a large part in the transmission of diarrheal diseases."

In view of those appalling figures it seems that extreme measures should be taken in the campaign against His Majesty, the House-Fly. As he persistently ignores the trifling (?) matter of wiping his feet after meals, partaken from garbage piles and cans, dung heaps, animal carcasses (his especial piece de resistance) and innumerable filthy, disease-infected spots, he disseminates poison broadcast. Since he carries countless diseases, desperate efforts should be made on our part towards the prevention of disease by swatting him hard first, last, and always, and urging that his breeding-places be renovated and finally eradicated.

The sanitary conditions of small towns, villages, and farm homes are far from ideal. One of the worst institutions of this class is the ordinary toilet. Every man present knows how vile and contaminating these places are. During the summer they are swarming with flies and redolent with an odor, compared with which, that of the garbage heap is attar of roses!

With present-day conditions so deplorable, after the lapse of ages, we blush to recall the precaution demanded of his soldiers by Moses, the first great sanitarian, in requiring each to have a paddle attached to his weapon for the purpose of burying discharges, as a religious duty, thus taking a stand for improved health, which, perhaps, is responsible for establishing the unparalleled life-record of his people. Unfortunately, this exemplary custom seems to have been lost to the world, and the country, at large, tolerates the



dangerous substitutes, reeking with epidemics and pestilences resulting from ignoring the laws of nature and decency.

If sufficient agitation is brought to bear in regard to these filthy places, and the danger of contamination is proclaimed loud enough and long enough by physicians, sanitary places will be substituted.

The septic tank, which has been recommended by the Agricultural College of Ames, Iowa, and also by the State Board of Health of Kentucky, is practical for villages and farm homes, and the price of construction is within the reach of those of limited means.

Where there has been no agitation in regard to the treatment of defects of children, I think 25 per cent a conservative estimate of children under 15 years of age, needing medical or surgical attention. The condition of the throat claims the largest share of victims; the eyes rank next; and then come the general systemic conditions. Considering this state of affairs, it is to be hoped that in the very near future there will be medical supervision of the schools.

The State Committee of Health and Public Instruction has done efficient work in the past year. This committee has been active in spreading the gospel of sanitation and general information relative to health and disease. The chairman, Dr. Parsons, is to be especially commended for the zeal and energy manifested in his public talks and lectures.

With the disgracefully limited means at the disposal of the State Board of Health, what it has accomplished is astonishing.

The State Laboratory, under the management of Dr. Hertzberg, is doing splendid work. He is untiring in his efforts, and physicians throughout the state who avail themselves of his services appreciate the prompt and careful attention given to specimens and cultures sent. I would suggest that more physicians take advantage of the laboratory.

The prevalence of malpractice suits reminds us that this State Medical Association has made no provision for the protection of its members;

hence, it seems opportune for the House of Delegates to appoint a special committee for the consideration of a Defense Association, and that this committee report as soon as possible.

Fellows, in closing, I wish to call your attention to the tendency for us to enthuse over rare diseases and capital surgical operations, while the commonplace, seemingly less important matters of sanitation, importance of early diagnosis of ordinary diseases, and thorough application of preventive measures, are slighted.

I earnestly urge more effective co-operation through the medical societies. When organization is perfected medical legislation will be assured, and better health laws will soon be passed. Lack of harmony among physicians is responsible for delayed medical laws. In the proposed bills which have been before the Legislature, there has not been a general indorsement by physicians. Some have clamored for one thing; others, for something else. Such turmoil among physicians confuses the minds of the legislators, and the result has been unsatisfactory. I feel confident that any proposed legislation of a reasonable nature and endorsed by 80 per cent of the physicians of this state, would soon be enacted after due consideration by the Legislature.

Knowing what has been accomplished in the prevention of typhoid, smallpox, diphtheria, malaria, and other diseases, convinces us that a large share of preventive work is yet untouched. We have but nibbled at the edges, as it were. Hence, it is for us medical men to push forward and use every means of early diagnosis of diseases in general, but especially so in that of tuberculosis and cancer. In the incipient stages these diseases may be classed as benign, and treatment will be effective.

Let us urge the treatment of defective and diseased children in schools, in order that their development may be unhampered.

I care not what station a practitioner occupies, whether he be a distinguished internist, a skilled surgeon, or a mere tyro in the ranks, there is work for all in the field of preventive medicine.

## SEMEIOTIC SIGNIFICANCE OF PATHOLOGICAL FINDINGS IN ADULT FECES\*

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### IN TWO PARTS—PART I

On August 12, 1912, I presented the semeiotic significance of pathological findings in infant feces. Today I wish to present the same in adult feces based on 500 examinations made in my laboratory during the past eight years. The advances of intestinal pathology are far behind stomach pathology except a few fields of local inflammation, such as appendicitis, strictures, and obstructions. This is due to so many diffuse diseases of the intestines and their adnexa (liver and pancreas) that have no recognized symptoms. Functional disturbances of the intestines are difficult in recognizing because there is a limitation of our anatomical knowledge and a lack of a suitable test in determining the general total work done by the intestines, excluding the part the liver and pancreas play in food-metabolism. History, physical examination, by inspection, palpation, percussion, and auscultation of the abdomen, with examination of the secretions and excretions, and other organs in general, are essential to any clear perception of functional disturbances. But, just as examination of the urine in kidney diseases is essential to diagnosis of renal pathology, so the examination of the feces is just as important in intestinal pathology as to functional disturbances of motility, secretion, and absorption. The examination of the feces depends upon two propositions: First, we must have a uniform feces, that is, a normal feces; and, second, the examination must be simplified as much as possible. For the former we must have a uniform diet (a test diet); this diet must contain starches, albumins and fats, and liquids in their right proportions; for the latter, a routine examination so as to include a thorough knowledge of motility, secretion, and absorption. The test diet proposed by Adolph Schmidt is a very admirable one. It consists of the following:

**Breakfast.**—One pint of milk, or one pint of cocoa, made the following way: one dessert spoonful of cocoa, one-half dessert spoonful of sugar, one tea-cup of milk, and add water to make one pint. Two ounces of zwieback.

**10 A. M.**—Oatmeal gruel made the following way: 20 teaspoonfuls of oatmeal with boiling

water and a little salt; cook twenty-five minutes; add one pint of milk to half the above after it is cooked. The other half is to be used at 6 P. M. in the same way. To this luncheon add two ounces of zwieback and two soft boiled or poached eggs.

**Dinner.**—One-quarter pound of chopped beef with salt and one teaspoonful of melted butter, the meat broiled a little red (raw); twelve level tablespoonfuls of potato soup made the following way: mash potatoes, and thin down with milk until it is of a gruel consistency. Add to this meal two ounces of zwieback and a level teaspoonful of butter.

**4 P. M.**—Same as breakfast.

**Supper.**—The other half of 10 A. M. meal of oatmeal gruel, with zwieback and eggs. The above diet to be taken for three days; the stool to be examined on the third day.

The normal feces contain 8.5 per cent nitrogen, 16 per cent ether extract, and 15 per cent ash, calculated on a dry basis. Any deviation from this basis constitutes functional disturbance of the bowels. The time for the food contents to pass from the mouth to the anus is 12 to 24 hours on a test diet, and 36 to 48 hours on a milk diet. The time food passes from the mouth to the large intestines is 6 to 10 hours. The time from the large intestines to defecation is 16 to 24 hours. The weight of the normal moist stool is from 100 to 250 grams; the dry stool, 20 to 40 grams. The wide variation of the moist stool depends upon the character and quality of food. Under pathological conditions we have a variation from 50 to 1,200 grams. When a patient is placed on a strictly vegetable diet there is over 80 per cent of water; when on a proteid, not over 60 per cent of water; and on a mixed diet, about 50 per cent of water, normally.

**Color of Stool.**—Normally, on a test diet the color varies from brown to all the shades of dark brown.

A green stool suggests rapid peristalsis or great amount of bacillus pyocyaneus or excess of vegetable diet rich in chlorophyll.

A reddish stool suggests blood in the large intestines, ulcerations with or without rapid peristalsis, or such vegetables as beets.

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.

A gray stool suggests poor fat metabolism or a large amount of mucus and pus mixed in the feces.

A brownish-red stool suggests such drugs as sandalwood oil.

A chocolate brown stool suggests blood, an excessive meat diet, or drinking of black coffee.

A light yellow stool suggests milk, or such drugs as senna, santonin, rhubarb, or gamboge.

A black stool suggests bismuth, iron, or possibly blood.

A blue stool suggests methylene blue.

A golden yellow stool suggests partly unaltered bile.

A green yellow stool suggests rapid peristalsis, chronic enteritis, and colitis.

*Odor of Stool.*—The odor normally is due to skatol. A more offensive odor is due to excessive decomposition of proteids. A still more offensive one suggests chronic enteritis or a breaking down of the pathological secretions. A sour-smelling odor suggests active carbohydrate fermentation. Extremely foul stools are noted in chronic alcoholics. An odor of rancid butter suggests decomposition of blood and mucus. An ammoniacal odor suggests a fistulous opening to the bladder. A cadaveric odor suggests a gangrenous process. Spermin odor suggests cholera and cholera nostras. A sweetish or gluey odor suggests amebic dysentery. No odor but foul gas suggests catarrhal dysentery.

*Reaction.*—Normally the stool is amphoteric. An excessively acid stool points to starch-fermentation; an excessively alkaline stool points to proteid-decomposition, pathological secretions, or a saphrophytic growth.

*Specific Gravity.*—The specific gravity normally ranges from 1030 to 1060. A high specific gravity suggests poor starch-metabolism or excess of starch. A low specific gravity suggests poor fat-metabolism or an excess of fat.

*Number and Form.*—One or two movements a day are normal, with two exceptions: in a strict vegetarian, who may have more than two daily, and in one whose absorption is so complete that there is little ash left, so that, necessarily, there is a movement every other day. The normal formation of the stool is cylindrical. A large cylindrical mass suggests atony. A ribbon like stool suggests spastic or stenotic conditions. A number of small hard masses (sheep dung) suggests constipation, either anatomical or functional. A frothy stool suggests bacterial decomposition.

In constipation stools formed in small pieces suggest colitis.

In constipation stools formed in large dry masses suggest atony colitis.

In constipation stools formed ribbon shaped suggest spastic colitis.

In constipation stools formed in painful small hard masses suggest spastic colitis.

In constipation stools formed in not painful hard masses suggest atony colitis.

In constipation stools formed with gas suggest colitis.

In constipation stools formed with diffuse abdominal pain varying in character, or with anorexia, lassitude, nausea, flatulence, meteorism, and pressure, suggest chronic enteritis or ileotyphilitis.

In constipation stools painful and pencil shaped suggest enterospasm.

Absolute constipation without flatus, but meteorism and anatomical lesions, suggests ileus.

Absolute constipation with flatus and meteorism and vomit of fecal matter, but without anatomical lesion, suggests paralysis.

Inability to defecate, with pain in the anal region, suggests proctospasm or anal fissure.

Regular stools, but soft and mushy, suggest subacute enteritis.

Regular stools, but soft with mucus, suggest colitis.

Semi-solid stools with borborygmus and abdominal pressure suggest peristaltic unrest.

Diarrhea with bright blood and mucus suggests ulcers.

Diarrhea with bright blood, pus, and mucus, suggests proctitis.

Diarrhea with bright blood, pus, and mucus in senility, suggests cancer.

Diarrhea with mucus casts suggests colitis.

Diarrhea with mucus casts or sometimes blood suggests motor neurosis.

Diarrhea with diffuse abdominal pain varying in character with anorexia, lassitude, nausea, flatulence, and meteorism, suggests chronic colitis.

Diarrhea without any abdominal symptoms suggests gastric achylia.

Diarrhea with fever, nausea, marked thirst, bad taste and heavily coated tongue with tenesmus and pain low down, suggests colitis (acute).

Diarrhea with mucus, pus, or blood, suggests parasites or bact. inf.



Diarrhea with stools soft and pasty suggests enteritis.

Alternating diarrhea and constipation suggest ileotyphilitis.

Diarrhea with large masses of mucus, of ribbon or cone shape, suggests membranous colitis.

Diarrhea with continuous evacuation suggests proctitis, disease of the bladder or ureter, general muscular weakness, paralysis of the sphincter, or disturbance of the central nervous system.

Diarrhea with soft and pasty stool with gas only suggests enteritis.

When the stools stand in a vessel for some time and then separate, the watery elements rising, and the solids settling down, they suggest a chronic catarrhal condition of the small intestines. In making the macroscopical examination of the feces the stool is stirred up to one consistency, and a part the size of an egg is transferred to a clean mortar, and, after adding distilled water, is slowly and thoroughly mascerated and ground until it is a fluid consistency. This is then poured out on a plate that has a black surface. Normally, we find a few brown points the size of a pin-head, the chaffy remains of oatmeal, and a few cocoa nibs. Pathologically, we find muscle fiber, potato cells, connective tissue, fat, mucus, large crystals, flakes of pus, blood, parasites, and other proglottides, the remains of foreign bodies.

*Muscle Fiber.*—Normally, macroscopically there are very small brown specks the size of a pin-head, which upon pressure are broken up; microscopically, a few broken fibers, with rounded ends and no striation, yellow in color, with sometimes a flaky like structure.

Pathologically, macroscopically, they appear as rod-like fragments of wood and of all shades of brown, depending upon the condition of the bile; and upon pressure they are easily crushed; microscopically, they appear as broken bundles of broken fibers with sharp edges and horizontal striation. This suggests disturbed intestinal digestion, the pancreatic juice is not secreted freely enough, there is a too rapid peristalsis, or a primary disturbance of absorption, which leads to decomposition and secondary diarrhea. The fermentation test here with an alkaline reaction shows an albuminous decomposition; pronounced gas-formation over 33 per cent is taken conclusively. This suggests still further anatomical changes in the mucous membrane.

*Potato Cells.*—Normally, none.

Pathologically, macroscopically, the specimen presents a light brown foamy appearance, acid in

reaction, and numerous cells that look like tapioca or sago grains floating and rising above the liquid. They are transparent and can only be confused with mucus. But, we must remember that mucus lies flat in the liquid, and has a tendency to spread out and mix with the liquid. Again, we can take one of these bodies, place it on a slide, crush it and add Lugol's solution, and it will soon assume a blue-black color. Microscopically, we find by placing a specimen on a slide with Lugol's solution that the potato envelopes will contain many blue granules, which are undigested starch, the fermentation test here with an acid reaction showing a decided gas-formation over 33 per cent. This suggests a disturbance of the intestinal juices (succus entericus), and per se suggests a catarrhal enteritis from an intestinal fermentative dyspepsia.

*Fat.*—Normally, none, macroscopically; soaps, microscopically.

Pathologically, macroscopically, large masses of slimy soaps with clayey appearance, and a formation of a membrane on the surface, while the feces are rubbed up with water. Fat stools are light-white color, and, as a rule, acid in reaction. Microscopically, the field is filled with soaps and neutral fat. By the addition of a little acetic acid, heat and then cool, the field is changed to fatty acid crystals. This suggests a deficiency of bile or a disturbance of pancreatic secretion. And, if the exclusion of these can be made, it still suggests intestinal amyloid, intestinal tuberculosis, and tabes mesenterica.

*Connective Tissue.*—Normally, none.

Pathologically, macroscopically, the interstitial tissue appears as small white cords or little white threads. Sometimes long yellowish strips which are tough in disintegrating and cannot be crushed upon pressure. If doubt exists as to appearance, a drop of acetic acid with a little thread of tissue placed upon a slide will immediately make it soften, and finally disappear; whereas if it were mucus it would bring it out more plainly. Microscopically, the white threads appear as bundles of fibrous and elastic tissue, which can easily be distinguished. This suggests an incomplete chymification in the stomach; if we eliminate hypermotility of the stomach and bowels, in most cases a hypoachylia or an achylia is present. In some cases where hyperacidity exists the deficiency of chymification is due to too little pepsin. This suggests an interstitial change in the gastric mucous membrane.

*Mucus.*—Normally, none.

Pathologically, macroscopically, the mucus

spreads out upon the surface of the liquid and lies flat, and may be intermingled with liquid. It may be formed in stripes or tubes or long shreds, or may be in small flakes. It may be stained brown from hydrobilirubin, dark-orange from bilirubin, green from biliverdin, or reddish from bile pigments. It may be glassy or gummy, or may appear paper-like from the intermingling cellular tissue. It may appear like sago grains, or the flakes may be so small they cannot be determined by the eye except by placing a drop of feces on a slide with a drop of acetic acid, and then it will appear glassy. All forms, shapes, and colors by preparing with acetic acid, will appear glassy. The appearance of mucus in the feces is significant of the existence of an inflammatory condition of the mucous membrane, and is the only reliable sign we have of this. There are two exceptions: as to the drying of the stool, the outer coat looks like varnish; and in mucous casts mucus is discharged. Gently grinding of feces with water in a mortar does not affect the mucus by trituration. When the flakes are so small that they are hardly discernible by the eye, further examination is necessarily microscopic. Microscopically, the small flakes will appear glassy and transparent; with osmic acid they will turn black; with thionin they will turn violet, and the rest of the field turns blue. Mucus may have cells or half-digested cells, or bacteria interspersed in it. The more intense the inflammation, the more of these cells we can see.

Mucus may contain bilirubin or biliverdin crystals, and then we know it is from the small intestines. When microscopically erythrocytes or leucocytes are found in mucus it is inflammatory. By using neutral red and brilliant green, mucus will stain red, soaps rose, and bacteria green. Sometimes it is hard to differentiate between nucleoproteid and mucus. Then we have lime water and acetic acid tests precipitating proteid, but not mucus. Proteid reacts to phosphorus, but mucus does not. Mucus, by making acid, reacts to Fehling's test; proteid does not.

#### *Mucus.*—

Mucus that is large in amount and jelly-like suggests disturbance of the sigmoid.

Mucus that has inclusions and cone shape suggests membranous colitis.

Mucus that is mixed with pus cells suggests ulceration.

Mucus that is mixed with food remnants and is bile-stained suggests small intestine inflammation.

Mucus that is mixed with erythrocytes and leu-

cocytes, and stained with bilirubin suggests small intestine inflammation.

Mucus that contains sago-like bodies is seen in cholera and acute catarrhal conditions.

Mucus that is in thick threads and ropy masses suggests catarrh of the large intestine.

Mucus with large casts of the bowels is found in both acute and chronic conditions, depending entirely upon the epithelial cells they contain. These cells serve as an index to the degree of destruction.

Mucus that contains casts with inclusions and cone shape, without cells, suggests membrane colic.

Mucus that contains casts with cells is found in diphtheria, diabetes, tuberculosis, gastroptosis, nephroptosis.

Mucus with pus and blood is suggestive of dysentery, carcinoma, proctitis, parasites, or bacterial infection.

*Pus.*—Normally, none.

Pathologically, macroscopically, pus and mucus may be mixed with the stool, and give it a grayish appearance. Pus usually appears as gray bodies, in clumps, and is sometimes hard to distinguish from mucus. Pure pus without stool is seldom seen; but, when it is, it suggests a fistulous opening to an abscess connecting with the bowel, usually the colon. When mixed with mucus it suggests extensive ulceration, and when mixed with blood and mucus, and is bile stained, it suggests ulceration in the small intestines. Microscopically, the field may be filled with pus cells in all stages of disintegration, sometimes so broken up that one can hardly distinguish the cells; by the addition of a 1 per cent solution of KOH and methylene-blue, the cells can easily be recognized. A mucopurulent or seropurulent stool is significant of catarrhal dysentery.

*Blood.*—Normally, none.

Pathologically, macroscopically, unaltered blood is seldom seen unless the colon or rectum is involved, or unless extensive hemorrhage has taken place with rapid peristalsis. Some stools appear normal in consistence and color, but with the use of benzidin, aloin, and the guaiac tests, respectively, they give reaction to blood. Then the patient must go on a meat-free diet for three days, and the stool be examined again for blood. This suggests that an ulceration exists, which may be duodenal, peptic, follicular enteritis, small polypi, slight intussusception, or partial inguinal hernia; for, with these conditions, and these alone, we get pure reactions to blood when the stool looks natural. Micro-

scopically, we seldom see blood alone unless in crystals. It is usually mixed with mucus and pus, and suggests ulceration.

*Crystals.*—Normally, none.

Pathologically, macroscopically, we find crystals of the bowel may be divided in two classes: those that are formed in the intestinal tube and its adnexa, as intestinal, biliary, or pancreatic concretions; and those that are mixed with the feces, from pathological secretions and excretions. The former are either biliary or intestinal calculi. Biliary calculi vary from the size of a grain of sand to that of an olive. They are usually dark-yellowish or greenish or black, and are hard, or they are light-yellow in color, and are soft. The dark sink to the bottom of the vessel of liquid, and are chiefly composed of bile pigments. The light-colored are lighter than water, and are chiefly composed of cholesterine. Biliary concretions are formed in the gall-bladder or common duct, while intestinal concretions are formed in the cecum or appendix. Hepatic colic or obscure abdominal pains suggest concretions. The latter crystals of pathological secretion or excretion consist of fatty acid crystals, triple phosphates, hematoidin crystals, and Charco-Leyden crystals. Microscopically, fatty acid crystals will appear as slender needles arranged in rosettes. If the field is filled with these crystals it suggests poor fat-metabolism, or an alteration in the pancreatic secretion, or, excluding the above, such diseases as intestinal amyloid, intestinal tuberculosis, and tabes mesenterica; triple phosphate crystals grate in the specimen as it is ground up in the mortar. Microscopically, they appear as coffin-lids, and with the addition of acid disappear from view. They suggest extensive putrefaction of albumin or fistulous opening to the bladder or the ureter. To eliminate urine we test out for the chlorides by the Heck method. The Charco-Leyden crystals, microscopically, appear lance- or spear-shape, and suggest the presence of parasites, except in certain febrile conditions. The hematoidin crystals are found in gastro-intestinal hemorrhage of any kind.

The number of crystals present depends upon the amount of hemorrhage, and the smallest number is usually found in hemorrhage low down. They appear under the microscope like frosted cobwebs.

*Parasites.*—Normally, none.

Pathologically, it is not within the scope of this paper to take up all the parasites that have

been found in the intestinal canal, but only the common ones. Macroscopically, we find either segments of worms or the entire worms themselves, but the most important and most reliable method is the microscopic study of the feces. There are other methods which might suggest parasites, such as eosinophilia, and after the feces are wrapped in filter paper, the stained filter paper is reddish-brown. Parasites are divided into two classes, which we must always keep in mind, namely, the protozoa and the entozoa. The most common forms of the protozoa are the ameba and the balantidium coli. There are three kinds of ameba: the vulgaris, mitis, and coli, and they are found in all stools, and suggest dysentery. They all have encysted forms, but differ in contour, the coli having a single and the other a double contour. The rectal mucus is most likely to contain the amebae, but they can be recovered from the dysenteric stool. Place a portion of bloody mucus or a drop of the liquid stool on a glass slide; drop a cover-glass over it, and heat the end of the glass slide, and by placing it under the microscope the ameba can plainly be seen. They assume various shapes, 13 to 17 mm. in diameter, if the specimen is warm; but, if cold, they assume a spherical shape. They throw out a distinct prolongation of their protoplasm. They contain one nucleus and two to four vacuoles. Balantidium coli is an oval organism which measures about 1 mm. in diameter; its entire body is covered with cilia which are thickest at its mouth. It has a pale nucleus and two to four vacuoles. Small particles of starch and droplets of fat are seen within its body. They suggest extensive ulceration of the intestines, usually due to fish tapeworm. The most common of the entozoa are ankylostoma duodenale, ascaris lumbricoides, bothriocephalus latus, tenia echinococcus, oxyuris vermicularis, tenia mediocan cellata, tenia solium, trichocephalus dispar. Microscopically, we may find segments, or the entire bodies of these parasites, but the most important is the microscopic study of the feces for the ova, as sometimes we never see segments or bodies. By placing a drop of a liquid stool on a slide with a drop of normal salt solution, the ova can plainly be seen. When one is familiar with the appearance of the eggs and the embryos of the different parasites they can be readily recognized. The finding of ova of any of the entozoa not only suggests an intestinal catarrh, due to the parasites, but also clears up many atypical subjective symptoms.

(To be continued.)



# THE JOURNAL-LANCET

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## MOVING PICTURES

One of the greatest means of disseminating practical knowledge and one of the greatest educational measures is the improved moving picture show. Here arises an opportunity for sanitarians, physicians, and surgeons to place upon the screen films that will do more toward the education of the public than almost any other device. If every moving picture show in every city, town, and village had a health reel that it could display at each performance, even though it required but two or three minutes for the exposure, it would do a vast amount of good. But, like everything else of this nature, the results are extremely questionable. There are plenty of good stories, incidents, and industrial pursuits that have been filmed and have given great pleasure to audiences, but, as the audiences are of a mixed type, it seems quite necessary for the operators of moving picture shows to inject something either common, comic, or vulgar, and not infrequently many very poor illustrations are projected on the screen, simply to appeal to all classes of people. The worst, however, that has happened is the injection of vice problems and suggestive incidents of this type, which are morbid, usually unfaithful in their representa-

tion, and not infrequently disgusting, terrifying, and obscene.

It is impossible for a physician to understand why "White Slave Traffic," "Where are my Children," and other things depicting sin and immorality can be of any service, or will be received as a lesson by a mixed audience. The fact of the matter is, that all of these problems are harmful and not at all educational. Perhaps in a few rare instances some neurotic girl might be frightened into being more prim, precise, and prudish than she is ordinarily; but, on the whole, the audience, after seeing a group of this sort of defamatory, inflammatory, and degenerating pictures, goes away with a bad taste in its mouth; and, if anything, some of the audience are stimulated to investigate for themselves the morbid side of the underworld.

Censorship of moving pictures is less rigid than it should be. In contrast to the efforts of the promoters of the "Birth of a Nation," in which is depicted an historical event, and presented with all the magnificence and the expense of showing the enormous territory necessary for its display, as well as the mob of people necessary, too, in its performance, is the common vulgar film which appeals to the degenerate. In the first instance, the "Birth of a Nation" has been fought over in many states for fear that it will arouse race prejudice, when, as a matter of fact, it simply is an effort on the part of a few to prevent the feeling which existed between the North and the South during the Civil War. It is probably one of the grandest spectacular films the world has ever produced, and yet states and municipalities have prohibited its presentation on foolish grounds; but, when taken before the courts, almost invariably the picture has been shown by permission of the court. However, there seems to be no such effort to suppress the utterly indecent problem suggestions or the mixed and unwholesome life of the people of the underworld.

Most physicians will agree that the more these problems are presented for the public gaze, the more unrest will there be among the people. Of course, it may be claimed, and justly so, that many films have been censored out of existence, because they were too utterly rotten to be shown in any theater, but, even with that, there is too much of the vulgar and the unreal in the average picture show in the average city or town. There are some theaters, of course, that play to a better class of people, and they very carefully

abstain from introducing anything that is objectionable, and it has almost invariably been found, too, that these theaters are packed with audiences that seem to appreciate better things. The small places in the cities that are concealed in a measure, that are unsanitary in their construction, that are crowded and ill-ventilated, throw objectionable films upon the screen without hesitancy and without objection. The admission to these five-cent theaters is enough to stamp them as poor shows, and it is safe to say that the majority of them ought to be suppressed.

If the new and enormous combination of moving picture houses would turn their attention to better things, brighter things, things that are more or less educational, as well as entertaining, there would be no diminution in the crowds that invade the theaters. Perhaps if the physicians took a little more interest in the matter it might be comparatively easy to introduce all sorts of public health films without over-exaggeration of actual conditions, and yet be instructive, elevating, and helpful to those who really need it.

Perhaps our oculists might add a word of warning as to the effect upon the eyes of moving pictures. They know very well that there is a certain public that is addicted to moving picture shows, and that many go several times each week, and it is questionable whether the rapidly moving film, which is not uncommonly an agitated film, does not produce some eye-strain, headache, sleeplessness, nervousness, and other conditions that can be traced to eye-strain. Many people are prevented from going to "movies" by this cause alone, and if it is necessary to wage a campaign against moving picture shows on general principles, the eye man is the one to begin the crusade. It has even been recorded that too constant attendance to the "movies" has produced very serious nervous disorders, sometimes even neurasthenia, psychasthenia, and milder forms of mental disorders. This probably is due to the fact that the sufferer is primarily a high-grade neurotic, and becomes more or less disturbed, excited, and tired by the presentation of flickering films.

#### EPIDEMIC OF INFANTILE PARALYSIS

The recent epidemic of poliomyelitis which has broken out in Brooklyn and New York City is evidently one of the most serious that have ever attacked a section of the country. For several days it was reported that there was a death every hour from infantile paralysis. That means that

a very large number of children must have suffered from the infection. The conditions were so bad in New York that the federal government was called upon, or, at least, it offered its aid and assistance in suppressing the epidemic, and by this time every force has been brought to bear to stamp out the disease. In spite of their efforts, however, the epidemic has carried its cases into other states, and Chicago reports cases, other cities between Minnesota and New York are reporting cases, and we have had reports of occasional cases in this state, but they were evidently sporadic and not at all epidemic.

Many of the states have very rigid rules affecting the isolation of these cases. Minnesota has for some time had regulations governing the control of infantile paralysis. It demands isolation, immediate report of the cases, and the usual measures that are employed in any communicable or infectious disease. In this way it has been possible to stamp out beginning epidemics. This was done last year in the northern part of the state by the prompt efforts of health officers and the state workers.

Unfortunately, the cause of the disease has not been definitely determined. It has been suggested that it is a dust-born disease and that it is carried from house to house by the dust on shoes. It is also thought that it is a disease carried by flies from manure piles. At all events it is one of those mysterious invasions that have to be watched unceasingly, and physicians should be reminded that, although it presents the ordinary picture of a cold and sore throat, or a mild exanthematous disorder, there should be a prompt and immediate examination of the entire body to determine whether a paralysis exists in the case of every sick child. Not infrequently, as we all know, the paralysis is prompt in its arrival, but, on account of the seeming severe illness of the child, the actual conditions are not recognized. Occasionally this happens in a doctor's immediate family, and a child is taken sick and the father and doctor who knows every part of the child's anatomy and its peculiarities occasionally overlooks the possibility of an infantile paralysis.

In the beginning of all suspected cases, and even where the disease has not appeared, the child should be very carefully nursed, eliminatives should be used at an early hour, warm baths, either sponge or tub, should promote the activity of the skin, the bowels should be cleared by laxatives or high enemas, and the patient

promptly put on urotropin. One should always remember that the position of the limbs should be carefully guarded as it is possible in a few hours to strain a group of muscles irreparably, and only by prompt efforts and active observation and care can the minimum of paralysis be expected.

The after-treatment, that is, the treatment after the acute symptoms have subsided, is highly important, and again it is necessary to emphasize the posture of the limbs. The arms and legs should be kept in as nearly a normal position as possible, and supported by pillows or whatever is necessary to prevent drop-foot, drop-wrist, or the straining of any muscle or group of muscles. No active measure should be employed after the disease is fully developed for some time,—that is, massage, electricity, and things of that sort. Preferably, the patient should be kept quiet, with very gentle rubbing of the skin with oil and baths, preferably in a tub, without distortion of the limbs. This necessitates very careful handling of the infant or child to prevent the unfortunate sequelæ that follow the infection.

There is an opportunity in New York to test out the antitoxin for poliomyelitis, and the Rockefeller Institute has probably made every effort so far to prove its value, and, when that has been accomplished, the world at large will have gained immeasurably by such a remedy.

## BOOK NOTICES

**SURGICAL OPERATIONS WITH LOCAL ANESTHESIA.** By Arthur E. Hertzler, M. D. Second edition. Surgery Publishing Co., N. Y. 1916. Price, \$3.

In this, the second edition of this work, the author has enlarged the scope somewhat, and has given in detail the technique of the administration of local anesthesia in a considerable range of surgical operations. While in the preface, the author states that he has drawn largely from the literature on local anesthesia, one cannot fail to be impressed with the fact that the material found within its pages consists of the author's own ideas, in a superlative degree, deduced from experience. He states in the preface that "we are as yet only constructing an alphabet in local anesthesia." As this is undoubtedly true, books of this nature, giving the individual experience of those most accomplished in the art of local anesthesia, will serve a very useful purpose.

One of the most striking features of the work is the enthusiasm with which quinine and urea hydrochloride is advocated by this author. The efficiency of this drug in his hands will surprise many who have had less happy experiences with it. The difficulty of obtaining

novocaine in this country at the present time serves greatly to enhance this feature of the work.

There are throughout the work many statements to which exception might be taken, or with which the reviewer might disagree. For instance: one might not agree with the author when he states that the fourth, fifth, and sixth intercostal nerves cannot be anesthetized at their source; that acute abscesses can be better operated upon by general than by local anesthesia; that the upright position in tonsil operations, or in any other operation under local anesthesia, is preferable to the recumbent position; that the meninges of the brain are entirely insensitive; that subdermic infiltration is a hit and miss method, and should be employed only where more exact methods cannot be employed; that the anal region, on the whole, is the most difficult field for the employment of local anesthesia; that it is a good plan for the patient to walk back from the operating room directly after the administration of local anesthesia.

It is arguments over such matters as these that make "horse-races," and many of these points are still sub judice.

One who is an advocate of local anesthesia notes with satisfaction that the author has been unable to find any recorded cases of death from novocaine anesthesia, and with surprise, that, notwithstanding the fact, he advocates so strenuously the avoidance of large doses of novocaine, even in weak solution, which is now generally believed to be safe.

The author takes exception to the method of combining local and general anesthesia, unless it is necessary to superimpose general anesthesia upon local anesthesia through failure of the latter.

The text is clear and concise throughout; the author leaving no doubt as to his meaning. The illustrations illustrate. Based, as it is, upon the author's own experience and careful observations, this little monograph is undoubtedly a great addition to our altogether too scant literature upon this very important subject. The few hours required for its perusal will amply repay any one who has the least interest in the subject.

—FARR.

**CANCER OF THE STOMACH.** A Clinical Study of 921 Operatively and Pathologically Demonstrated Cases, by Frank Smithies, M. D., Gastro-Enterologist to Augustana Hospital, Chicago. With a chapter on the surgical treatment of gastric cancer, by Albert J. Ochsner, M. D., Professor of Clinical Surgery in the University of Illinois. Octavo of 522 pages with 106 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, \$5.50 net; half morocco, \$7.00 net.

This work is a valuable contribution to medical literature.

The changed opinion of the profession in regard to cancer of the stomach in the last ten years, the progress made in diagnosis, and the results obtained by early operative interference, have all favored the production, at this time, of a monograph of this kind.

Dr. Smithies' experience and painstaking methods of investigation, makes it possible for him to speak with authority on the subject.

The author lays special emphasis upon heredity as the cause of cancer, as well as a preceding ulcer.

The case-histories presented under symptomatology are interesting and quite typical.



While the x-ray has been well considered, yet it is not emphasized as the most positive means, at the present time, of making an early diagnosis.

Some interesting clinical data on gastric cancer in the young are brought out, and the table appended is very instructive.

The chapter on differential diagnosis, with accompanying tables and a few histories, makes the work of great service to the general practitioner.

Dr. Smithies takes up the non-surgical methods of treatment including x-ray, radium, serum-therapy, and vaccines.

The work is quite well illustrated.

The additional chapter upon "Surgical Treatment of Gastric Cancer" by Dr. Ochsner will increase its popularity among surgeons.

—BENJAMIN.

**OBSTETRICS.** A Practical Text Book for Students and Practitioners. By Edwin Bradford Cragin, A.B., A.M., (Hon.) M.D., F.R.C.S. Octavo, 858 pages, with 499 engravings and 13 plates. Cloth, \$6.00 net.

The author of this work has had a large personal experience in both hospital and private practice. His work has been done in one of the largest and best hospitals for women in this country. In the Sloane Maternity there are over 1,800 deliveries annually.

He has given the profession the results of his contact with this enormous obstetrical material and has compiled some American statistics based on the management of cases in that institution.

He has followed a very simple classification of the subject matter, which makes it easily accessible to the reader, especially for reference. The work is concise, well illustrated, and clear. Many practical and valuable points in technic are brought out. It is a book well adapted to those who are actively engaged in the practice of obstetrics and who feel the need of suggestions as to the proper management of both normal and abnormal obstetric cases. It is useless to detail the many procedures which are considered in this book.

It is full of valuable and safe suggestions to those who wish to seek it for advice along this branch of medicine.

—ADAIR.

**PELLAGRA.** By E. M. Purdue, M. D. Kansas City, Mo.: The Burton Publishing Co. 1916. 362 pages. Price, \$3.

We have derived almost as much pleasure from reading this book as we did from reading "Science and Health with Key to the Scriptures." On page 22 we find the following sentence: "One or the other of these facts we have just indicated depends directly upon the silica, or the one depends upon the other; we are not able to decide with certainty; therefore, profiting by the facts noted, we are able to approach the truth, if we have not arrived at the truth already."

The author states that in his researches he has not followed the German scientific methods. This statement will not be challenged by anyone who reads the book.

He also states that the "organs of organized medicine" have quoted with approval the "silly experiments" of the United States Public Health Service in regard to pellagra.

At all events we agree with the statement, on page

336, that "True fame and credit is due to the physician who prevents and cures this disease, rather than to him who evolves, promulgates and defends the most impossible theory."

—OLSON.

## REPORTS OF SOCIETIES

### WABASHA COUNTY SOCIETY

The forty-eighth annual meeting of the Society was held at Plainview, Thursday, July 6th.

At the business session the following officers were elected: President, Dr. A. A. Rankin, Zumbro Falls; vice president, Dr. W. F. Bleifuss, Elgin; secretary-treasurer, Dr. W. F. Wilson, Lake City; delegate, Dr. D. S. Fleischhauer, Wabasha; alternate, Dr. E. H. Bayley, Lake City; censor for three years, Dr. D. P. Dempsey, Kellogg. The next place of meeting was left to the president and secretary to decide. A letter from Dr. W. T. Adams, of Elgin, was read stating that owing to ill health he was unable to attend the meeting, and expressed his regret, this being one of the few meetings he had failed to attend since becoming a member of the society in 1875. On motion, the Society voted to send a floral tribute and testimonial letter to Dr. Adams.

Dinner was served at the hotel through the courtesy of Drs. J. A. Slocumb and E. A. French.

During the afternoon the following program was carried out:

1. President's Address, "The Use of Vaccines in Some Anemias," Dr. D. S. Fleischhauer, Wabasha.

2. "Extra-Uterine Pregnancy," Dr. M. J. Shaughnessy, Wabasha.

3. "Vulnerable Spots in the Preventable Field," Dr. I. J. Murphy, St. Paul, Secretary Minnesota Public Health Association.

4. Committee Report, "Completion of Our Buena Vista Sanatorium for the Tuberculous at Wabasha," Dr. E. H. Bayley, Chm., Lake City.

5. Case-Report, "Yeast Infection of the Throat," Dr. W. F. Wilson, Lake City.

6. Discussion, "Effects of Alcohol on the Human System, and the Stand Medical Men Should Take Regarding Temperance Legislation."

This discussion was called for because of a request made by the President of the State Medical Association that this subject be taken up by the County Medical Societies. Motion made and carried that this society go on record as favoring any legislation that will promote the cause

of temperance and tend toward the restriction of the liquor traffic.

After a vote of thanks tendered the Plainview doctors for their very courteous entertainment of the society and Dr. Murphy of St. Paul for his able address, the meeting adjourned.

W. F. WILSON, M. D.,  
Secretary.

## NEWS ITEMS

Dr. William H. Eaton, of Adrian, has located in Worthington.

Dr. C. G. Toland, of Rochester, is spending some time in California.

Dr. Laberge has moved from Williston, N. D., to Grand Forks, N. D.

Dr. Elizabeth A. Neff, of Emerson, N. D., has moved to Halliday, N. D.

The police pulmotor of St. Paul saved the life of a new-born girl last week.

Ten physicians took the July examinations for license to practice in North Dakota.

Dr. O. C. Heyerdale, of Rochester, has returned from an extended eastern trip.

Dr. Paul Rowe, a recent graduate of the University of Illinois, is to locate at Chaffee, N. D.

Dr. B. M. Howland, of Melbourne, Iowa, has located in Breckenridge, where he formerly lived.

Dr. J. J. Gelz, of Richmond, was married the last of June to Miss Catherine Werner, also of Richmond.

Dr. F. A. Spafford, of Flandreau, S. D., is to spend two months in the medical department of Yale University.

Dr. B. S. Adams, of Hibbing, is erecting a new hospital building to take the place of the old one of the Adams Hospital.

Five cases of cerebrospinal meningitis (epidemic) and one case of poliomyelitis were reported in Minnesota for May.

The new building of the Maternity Hospital of Minneapolis will be ready for occupancy early next month. It cost \$65,000.

Dr. F. W. Briggs, of Moorhead, is spending the month of July visiting eastern clinics for eye, ear, nose, and throat work.

Dr. George McCreight, of Chicago, has located in Albert Lea, and become associated with Dr. R. G. Stevenson of that city.

Dr. E. W. Feige, of Huron, S. D., has been reappointed to the South Dakota State Board of Health and Medical Examiners.

Dr. James L. Savage, of Fargo, N. D., died on July 3d at the age of 51. He had practiced in North Dakota nearly twenty years.

The firm of Drs. Stemsrud, Johnson and Meland, of Dawson, has been enlarged by the addition of Dr. Carl Johnson, of Montevideo.

Dr. Clifton Boreen, of Minneapolis, has been appointed instructor of dermatology in the Medical School of the University of Minnesota.

Dr. W. E. Daniels, of Madison, S. D., was elected president of the National Eclectic Medical Association, which met last month at Cedar Point, Ohio.

Dr. N. W. Chance, of Little Falls, died on July 3d at the age of 57 after a long illness. He was one of the best known physicians in Central Minnesota.

On July 4th the nurses of the Swedish Hospital of Minneapolis dedicated a sixty-foot flag pole, which has recently been raised on the hospital lawn.

The school teachers of North Dakota favor a law for state-wide medical inspection of schools, and will make an effort to obtain the enactment of such a law.

Dr. Franklin J. Cressey, of Granite Falls, died at St. Luke's Hospital in St. Paul on June 26 at the age of sixty-seven. Death followed a year of poor health.

The firms of Drs. Perkins Nachtwey and Drs. Bowen and Long, of Dickinson, N. D., have united to form the firm of Drs. Perkins, Bowen, Nachtwey and Long.

Dr. O. W. McClusky, of Carrington, N. D., is to take a six weeks' postgraduate course in Chicago. During his absence Dr. Milton Graham, a recent graduate of Rush, will look after his practice.

The Mayo Clinic has offered to equip and pay the expense of a hospital unit for our troops called out by the Mexican trouble. Members of the Mayo Clinic staff would constitute the staff of the unit.

If our soldiers go into Mexico, the physicians in charge will have the following diseases to contend with: Yellow fever, malaria, typhus fever, typhoid fever, dysentery, and smallpox. Typhoid vaccine will be administered to all troops, and all will be vaccinated.

The quarterly meeting of the Red River Valley Society was held last month in Thief River Falls. The attendance was small because of storms and bad roads. Dr. J. P. Sedgwick, of Minneapolis, read a paper on "The Diseases of Children," which was fully discussed.

Dr. E. A. Loomis, a former graduate of the Medical School of the University of Minnesota, has returned to Minneapolis from Portland, Oregon. His practice will be devoted to eye, ear, nose and throat work, in which he has been appointed as assistant at the University.

Drs. A. R. Colvin and J. M. Armstrong, of St. Paul, E. A. Hedback, of Minneapolis, F. B. Strauss and A. M. Fisher, of Bismarck, N. D., and W. E. Clark, of Aberdeen, S. D., have been acting as assistants to camp surgeons at the different National Guard concentration points.

The City Hospital of Minneapolis has made new arrangements to take care of its emergency work. Three new automobile ambulances have been placed in service, and the police department of the city will no longer look after such cases. Three new physicians will also look after the sick in their homes, and will carry medicines to be dispensed without charge.

Solicitors for the Children's National Tuberculosis Society seem to go through the office-buildings of Minneapolis and St. Paul at regular and close intervals, and they collect considerable sums of money. The Society cannot be said to be fraudulent, but it is not worthy any man's support, for a very small per cent of the amount collected goes to the support of its "Children's Home" in New Mexico.

The National Board of Medical Examiners will hold its first examination in Washington D. C., beginning on Oct. 16, and lasting a week. The Board is designed to establish a standard of examination which, it is hoped, will become the standard throughout the country. The Board is endorsed by many medical societies, and has financial support from the Carnegie Foundation. Further information in the shape of circulars and application blanks may be obtained from the Secretary, Dr. J. S. Rodman, Philadelphia.

Program of the mid-summer meeting of the Southern Minnesota Medical Association, Rochester, Minnesota, August 1 and 2, 1916:

#### TUESDAY, AUGUST 1.

8:00 P. M.—Address in Medicine, by Dr. L. G. Rown-tree, followed by informal discussion

#### WEDNESDAY, AUGUST 2.

8:00 A. M. to 1:00 P. M.—Surgical Clinic, St. Marys Hospital

Room I—C. H. Mayo  
Room II—W. J. Mayo  
Room III—E. S. Judd  
Room IV—E. H. Beckman  
Room V—D. C. Balfour  
Room VI—W. E. Sistrunk

Pathological Laboratory—W. C. MacCarty

9:00 A. M. to 12:00 M.—Clinics, Mayo Clinic Building

Internal Medicine  
Eye and Ear  
Orthopedics  
Nose and Throat  
Röntgenology  
Cystoscopy

Demonstrations in Laboratories, Mayo Clinic Building

Pathology  
Bacteriology  
Parasitology  
Hematology  
Physiologic Chemistry  
Gastrology

#### Experimental Surgery

1:00 P. M.—Luncheon, Kahler Sanitarium

2:00 P. M.—Scientific Meeting, Staff Room, Mayo Clinic

Obstetrics as Practiced in the Rural Districts in the State.—F. E. Leavitt, St. Paul

Operative Results Following Myomectomy.—Leda J. Stacy, Rochester

Transfusion in the Treatment of Pernicious Anemia.—Alexander Archibald, Rochester

Some Phases of the Differential Diagnosis of Exophthalmic Goiter.—W. A. Plummer, Rochester

Pre-operative Considerations of Exophthalmic Goiter.—D. M. Berkman, Rochester.



## LOCUM TENENS WANTED

I want some one to take my place for three or four weeks, beginning the early part of July. Address 372, care of this office.

## PHYSICIAN WANTED

A good doctor in a county-seat town of 700, good farming community, only one doctor here at present. Inquire of Martin Holtan, President Commercial Club, Washburn, N. D.

## HOSPITAL FOR SALE

Hospital with surgical and general practice in a progressive Minnesota town with large surrounding field. Price and terms reasonable. Address 367, care of this office.

## PHYSICIAN WANTED

A young doctor who speaks German to locate in one of the best towns in western North Dakota. Have party who will open drug-store at same time. Address 377, care of this office.

## PRACTICE FOR SALE

North Dakota practice for sale. No competition. Population, 700. Excellent schools. Large territory. Will sell for \$500, including household goods. Address 363, care of this office.

## DESK SYSTEM FOR SALE

One complete Desk System of the American Desk & Register Co., with full line of stationery. Beautiful weathered oak desk. Cost \$200. Will sell for \$100 cash. Address 364, care of this office.

## ASSISTANT WANTED

First-class assistant on salary for a year. If satisfactory will take in as partner after a year. Must be able to do x-ray and laboratory work.

Address Dr. Geo. A. Sarchet, New England, N. D.

## HOSPITAL AND PRACTICE FOR SALE

A well established practice and small hospital in Minnesota town. Price and terms very reasonable. An excellent opening to one who wishes to do surgery. For further particulars address 374, care of this office.

## FOR SALE

Instruments, office fixtures, books, furniture, etc. This offers an exceptional opportunity for any one wishing to equip an office at reasonable prices. Address inquiries to Mrs. A. P. Keam, 916 Marshall Ave., St. Paul, Minn.

## ASSISTANT OR PARTNER WANTED

In Southern Minnesota village of 600. Young or middle-aged man with speaking knowledge of German or Scandinavian preferred. When writing give lowest salary, qualifications, and references. Address 373 care of this office.

## PRACTICE FOR SALE

Minnesota city practice for sale, or partnership offered. Entirely office practice. Genito-urinary specialty. Wish partner acquainted with this line, as partner with view to successorship, or physician to become proficient in this line. Necessary to speak Scandinavian language. Address 894, F. V. Kniest, Medical Broker, Omaha, Nebr.

## INSTRUMENTS FOR SALE

\$1,500 worth of instruments for treatment of eye, ear, nose, and throat. Must sell to one person or institution. No piece sales. Also other surgical and diagnostic outfit. Inspection only for probable purchasers. Price low. Address Flora L. S. Aldrich, Anoka, Minn.

## PRACTICE FOR SALE

A \$4,500 Southern Minnesota practice, collections 100 per cent, in fast growing modern town of 600 with high school, churches, fine business houses, and two railroads. Richest farming country in state, fine roads, excellent opportunity to make money. Residence optional. Address 355, care of this office.

## SANITARIUM LEASE FOR SALE

Well-advertised eighteen-room sanitarium; well equipped for nursing; electric-light, baths, steam- and treatment-rooms; splendidly situated in business district. Unopposed; \$5,000 annual cash business. Will assign liberal four-year lease (includes heat), fixtures and equipment below cost. Write for inventory and business statement. Address Granger Sanitarium, Aberdeen, South Dakota.

## ASSISTANTSHIP WANTED

Wanted: Permanent association with busy surgeon, by ambitious, active young physician. Graduate of University of Minnesota; one year as interne at large city hospital; one year assistant in surgical practice. Single; no bad habits; can speak German. Special training in laboratory and x-ray work. Am interested in surgery, and am not afraid of hard work. Address 365, care of this office.

## PRACTICE FOR SALE

I offer for sale a \$5,000 rural practice in a rich agricultural and dairy section of central Minnesota. Buildings, lots, and drugs are worth \$6,000. If acted on soon may consider exchange or trade in real estate, etc., as part payment. An exceptional bargain, and a location where money is made from the start. State full particulars in first letter—what you have for exchange and amount of cash. If no trade or exchange, \$2,500 cash and \$2,500 mortgage to run for 5 years, will handle the deal. Good reason for leaving. Address 356, care of this office.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF  
MINNESOTA FOR THE MONTH OF APRIL, 1916

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	4															
Alexandria	2,681	3,001	5			1											1	
Anoka	3,769	3,972	10	1				1										
Austin	5,474	5,960	9			1												1
Barnesville	1,326	1,353	0															2
Bemidji	2,183	5,099	14		1												1	
Benson	1,525	1,677	0															
Blue Earth	2,900	2,319	1	1														
Brainerd	7,524	8,526	8															
Breckenridge	1,282	1,840	22															
Canby	1,100	1,528	5							1		2						
Cannon Falls	1,239	1,385	0															
Chaska	2,165	2,050	2															
Chatfield	1,426	1,226	1															
Cloquet	3,074	7,031	3			1											1	
Crookston	5,359	7,559	7														2	
Dawson	962	1,318	1															1
Detroit	2,060	2,807	7			2	1											
Duluth	52,968	78,466	88	9	0	17	0	0	4	0	0	0	0	0	0	5	0	9
East Grand Forks	2,077	2,533	2						1									
Ely	3,572	3,572	22	1	1													1
Eveleth	2,752	7,036	4															
Fairmont	3,440	2,958	4															1
Faribault	7,868	9,001	8														1	1
Fergus Falls	6,072	6,887	11	1		1			2							3		2
Glencoe	1,788	1,788	2														1	
Glenwood	1,116	2,161	0															
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	9															1
Hutchinson	2,495	2,368	2															1
International Falls		1,487	4															
Jordan	1,270	1,151	1															1
Lake City	3,142	3,142	4									1						
Le Sueur	1,937	1,755	4			1												
Little Falls	5,774	6,078	3													1		
Luverne	2,223	2,540	2															
Madison	1,336	1,811	3		1												2	
Mankato	10,559	10,365	22		1	3									1			
Marshall	2,088	2,152	3		1													
Melrose	2,591	2,591	2			1											1	
Minneapolis	202,718	201,408	397	37	14	42	9	2	20	0	5	0	0	2	6	24	7	16
Montevideo	2,146	3,056	7	1														1
Montgomery	979	1,267	1															
Moorhead	3,730	4,840	11	2	1							1				1	1	
Morris	1,934	1,685	0															
New Prague	1,228	1,554	2															
New Ulm	5,403	5,648	5															
Northfield	3,210	3,215	3															
Ortonville	1,247	1,774	2															
Owatonna	5,561	5,658	5					1				1					1	
Pipestone	2,536	2,475	5						1									
Red Lake Falls	1,666	1,666	1			1												
Red Wing	7,525	9,048	13													1		1
Redwood Falls	1,661	1,666	0															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	34			1										1	7	1
Rushford	1,100	1,011	1	1														
St. Charles	1,304	1,159	2															
St. Cloud	8,663	10,600	7			1											1	
St. James	2,102	2,102	1															
St. Paul	163,632	214,744	249	20	6	25	1	0	5	0	3	0	0	0	6	21	3	15
St. Peter	4,302	4,176	3															
Sauk Centre	2,154	2,154	4															
Shakopee	2,046	2,302	3															
Sleepy Eye	2,046	2,247	1															
South St. Paul	2,322	4,510	6		1							1				1		
Staples	1,504	2,558	3			1												
Stillwater	12,318	10,198	10					1									3	1
Thief River Falls	1,819	3,174	5															
Tower	1,111	1,111	0															
Tracy	1,911	1,826	2														1	
Two Harbors	3,278	4,990	2									1						
Virginia	2,962	10,473	9			3												
Wabasha	2,622	2,622	4					1										
Warren	1,276	1,613	3														1	
Waseca	3,103	3,054	5			1			1								2	1
Waterville	1,260	1,273	1	1														
West St. Paul	1,830	2,660	2	1		1											2	1
Willmar	3,409	4,135	10	2													2	
Winona	19,714	18,583	26	2								1			1	2		3
Winthrop	813	1,043	0															
Worthington	2,386	2,386	4		1													

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian .....	1,258	1,112	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Aitkin .....	1,719	1,633	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Akeley .....	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Appleton .....	1,184	1,221	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belle Plaine .....	1,121	1,204	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Biwabik .....	...	1,690	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bovey .....	...	1,377	2	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Browns Valley .....	721	1,058	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Buffalo .....	1,040	1,227	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Caledonia .....	1,175	1,372	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cass Lake .....	546	2,011	2	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Chisholm .....	...	7,684	13	...	1	4	...	...	...	...	1	...	...	...	...	1	...	2
Coleraine .....	...	1,613	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Delano .....	967	1,031	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Farmington .....	733	1,024	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fosston .....	864	1,055	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Frazee .....	1,000	1,645	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Grand Rapids .....	1,428	2,239	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hibbing .....	2,481	8,832	7	...	...	...	...	...	...	3	...	...	...	...	...	1	...	1
Jackson .....	1,756	1,907	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Janesville .....	1,254	1,173	3	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Jenney .....	1,202	1,237	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lake Crystal .....	1,215	1,038	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Litchfield .....	2,280	2,333	6	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Long Prairie .....	1,385	1,250	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Madelia .....	1,272	1,273	2	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Milaca .....	1,204	1,102	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mountain Lake .....	959	1,081	3	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Nashauk .....	...	2,080	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North Mankato .....	939	1,279	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North St. Paul .....	1,110	1,404	2	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Osakis .....	917	1,013	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Park Rapids .....	1,313	1,850	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pelican Rapids .....	1,033	1,019	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Perham .....	1,182	1,376	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pine City .....	993	1,258	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Plainview .....	1,038	1,175	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Preston .....	1,278	1,193	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Princeton .....	1,319	1,555	3	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Louis Park .....	1,325	1,743	3	2	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Sandstone .....	1,189	1,818	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Sauk Rapids .....	1,391	1,745	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
South Stillwater .....	1,422	1,343	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Springfield .....	1,511	1,482	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spring Valley .....	1,770	1,817	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wadena .....	1,520	1,820	3	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Wells .....	2,017	1,755	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West Minneapolis .....	2,250	3,022	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wheaton .....	1,132	1,300	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
White Bear Lake .....	1,288	1,505	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Windom .....	1,944	1,749	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Winnebago City .....	1,816	2,555	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Zumbrota .....	1,119	1,138	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
STATE INSTITUTIONS			5	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Anoka, Asylum .....	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Faribault, School for Blind .....	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Faribault, School for Deaf .....	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Faribault, School for Feeble Minded .....	...	...	5	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...
Fergus Falls, Hospital for Insane .....	...	...	10	3	...	...	...	2	...	...	...	...	...	...	...	...	...	...
Hastings, Asylum .....	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Minneapolis, Soldiers' Home .....	...	...	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Owatonna, School for Dependents .....	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Red Wing, State Training School .....	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rochester, Hospital for Insane .....	...	...	11	3	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Sauk Centre, Home School for Girls .....	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Peter, Hospital for Insane .....	...	...	6	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Cloud, State Reformatory .....	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Stillwater, State Prison .....	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
OTHER PARTS OF STATE			772	69	4	71	2	17	19	0	9	0	0	2	24	52	1	38
Total for state .....			2014	166	35	188	15	23	60	0	27	0	0	7	46	146	13	104

\*No report received. REGISTRAR not doing his duty.

147 stillbirths not included in above totals.





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Pollen irritation favors the development of pyogenic bacteria in the respiratory tract which then become a primary factor of the disease. Experience shows that the immunizing influence of an appropriate bacterin will either cure the disease or so modify it that it causes but little distress

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Pyorrhea	Chronic Bronchitis
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Sinus Infections	Otitis Media
Throat Infections	Skin Infections
Bladder and Urethral Infections	Hay Fever

The *exciting* organism is identified and isolated. Cultures are made both aerobically and anaerobically. The vaccine is furnished in a single half-ounce container or in ampules in graduated doses. Culture media, with sterile swab and directions for collection of specimens, sent upon request, without charge.

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## PUBLISHER'S DEPARTMENT

### RESPONSIBLE COLLECTORS

As our readers are well aware, these columns have always been closed against advertising anything we did not think possessed merit. The mere fact that the Publishers' Adjusting Association advertisement appears on another page of this issue is ample evidence that we consider them responsible; and from the evidence we have before us we might add that we consider them thoroughly reliable and competent collectors of doctors' old accounts on a most reasonable basis.

### A PERFECT DAY AND NIGHT URINAL

Messrs. Sharp & Smith are offering an indispensable appliance for patients in need of such help as it furnishes. It is a urinal for day or night use and for both male and female patients, that is comfortable to wear and is entirely free from leakage. Its low cost (\$5) further commends it; and the standing of its manufacturers is proof against the slightest exaggeration in their claims for the appliance.

See their announcement on another page.

### MIDWAY GENERAL HOSPITAL

Dr. John D. Utley, formerly of Spring Valley, has begun work as surgeon and manager of the Midway General Hospital, and we wish him large success. He takes charge of a modern, well-equipped hospital exceedingly well located, it being between St. Paul and Minneapolis only one block from the street-cars, and has excellent ambulance service.

The hospital is open to all physicians in good standing; and its rates are moderate. It is located at 389 N. Snelling Ave., St. Paul.

### DR. WEIRICK'S SANITARIUM

The above sanitarium for the treatment of drug addicts, alcoholics, and special nervous patients, was established in 1901 in the beautiful city of Rockford, Ill., near Chicago, by Dr. Broughton. It is now under the management of Dr. G. A. Weirick, who was assistant to Dr. Broughton for many years.

There are probably few institutions in the West where better service is obtainable and more comforts offered patients. The building, the location, and the manager are of the first class.

### THE WALMAN OPTICAL COMPANY IN LARGER QUARTERS

The Walman Optical Company, wholesale opticians, are about to move into larger quarters. They are moving from 814 Nicollet Ave., to 9th and Nicollet, space having been leased on the second floor of the Physicians' and Surgeons' Building. The factory will be enlarged, and equipped with additional new machinery for handling their increasing Rx department. Mr. Wm. F. Fisher, formerly for twelve years with the Chambers-Inskeep Optical Co., of Chicago, and for the past nine years factory superintendent of the Geneva Optical Co., of Minneapolis, will have full charge of the factory of the Walman Optical Co., Mr. Fisher and Mr. Walman having bought out the C. A. Hoffman interest.

### THE HUDSON SANATORIUM

It is with pleasure that we record the rapid return of the Hudson Sanatorium under the management of Dr. Bradford to the high rank it attained under his former management.

This institution has a unique place in the institutional life of the Northwest. Its management has maintained the confidence of the medical profession for many years, and it has been a home for patients sent to it by the leading practitioners of several Northwestern states.

Dr. Bradford guarantees the best the institution and his staff can do for every patient sent him by medical men; and he cordially invites visits of inspection from the profession.

Hudson is only an hour's ride from the Twin Cities, and it is a beautiful city, and just the place for such a sanatorium.

### FARM MORTGAGES

A farm mortgage is now considered the best and safest form of investment one can make, particularly for loans of moderate size. The demand for farm mortgages has become so great that exclusive farm-mortgage companies have come into existence. Because of the magnitude of the business they conduct it at a minimum cost, and because they do an extensive business they employ the best expert examiners of both lands and titles. High-grade land-examiners are much more difficult to obtain than experts in almost any other line, and are indeed rarer. Such an examiner never places a mortgage that has to be foreclosed, and so a good loan company offers the investor better loans than can be obtained from the individual or firm doing a small business.

We believe the Phoenix Mortgage Loan Company of Minneapolis (406-410 Plymouth Building) to be a thoroughly dependable company.

### THE WINKLEY ARTIFICIAL LIMB CO.

If the "last word" in the manufacture of artificial limbs had been spoken, we should know where it had been uttered, and that is at the factory of the above company. Notwithstanding the revolutionary improvements made by the Winkley experts in the past third of a century, it is pleasant to believe that this organization will yet make more; and it must be gratifying to the man who has to wear an artificial leg to know that he has a Winkley, and that it is the best ever devised, and also to know that if any improvements are made it will be soon known to him, for they will come from the same experts.

Mr. Lowell E. Jepson, who for so many years has been at the head of this organization, has been honored in Minnesota by being elected to the State Senate several times, and now he is going to Congress, unless all signs fail, for in his district the nomination, which he has received, means an election.

He will be a good man for the medical profession and the public to have in Congress.

### LACTACID THERAPY IS POPULAR

In the treatment of the summer diarrheas and other bowel troubles, more and more physicians are coming to lean upon the cultures of the Bulgarian bacillus. Since the publication of Clock's remarkable report, the accuracy of which has been verified by the observations of Schwartz, Sinclair, and numerous others, it seems

to be definitely established that the *Bacillus bulgaricus* is one of the most efficient remedies we have for the treatment of infantile diarrheas, and it seems to be equally efficacious in the summer intestinal indigestion of adults, so many of which depend upon the presence of protein decomposition products in the bowel.

There are a number of excellent preparations of the Bulgarian bacillus on the market, but Galactenzyme (Abbott) deservedly takes high rank among them. It is one of the first to be placed upon the market, it is obtaining a deservedly high degree of popularity, and, best of all, it gives results.

We are informed that the sales of Galactenzyme are constantly on the increase. It is now available in nearly every drug store and can be secured through the regular channels of trade by every physician who desires it. If your druggist does not carry it in stock, write direct to The Abbott Laboratories, Ravenswood, Chicago, or to its branches in New York, San Francisco, or Seattle.

#### TREATMENT OF HAY FEVER WITH POLLEN VACCINES

Certain individuals become sensitized to the pollens of various plants, and when they later come in contact with these pollens they experience the distressing symptoms to which the name "hay fever" is usually applied. The attempt to desensitize these individuals by administering subcutaneously extracts of the pollens to

which they are sensitive has met with such success that it is now recognized as the only effective means of relieving this condition.

A variety of pollens may produce hay fever, but it is a generally accepted fact that in America "spring" hay fever is due in the majority of cases to pollens from the Gramineae. "Autumnal" hay fever, on the other hand, is due principally to the pollens of ragweed, goldenrod, and maize.

This is the season of the year when vaccination against autumnal hay fever should be begun. Hay Fever Vaccine "Fall" (Mulford) contains the protein extract from the pollens of ragweed, goldenrod, and maize, dissolved in physiological saline solution, and accurately standardized, and may be used without preliminary diagnostic tests.

The injections at first may be given at about five-day intervals. It is sufficient to start with a small dose and increase gradually until satisfactory results are obtained.

There are no contra-indications to the therapeutic or prophylactic use of Hay Fever Vaccine (Mulford) so far as known. A small percentage of patients may be hypersensitive to the protein extracts, in which case the dose may be accordingly reduced.

A complete "Working Bulletin" on Hay Fever Vaccine has been issued by the H. K. Mulford Company of Philadelphia, and contains valuable information regarding the treatment of this troublesome malady. It can be obtained from the company on request.

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## SEMEIOTIC SIGNIFICANCE OF PATHOLOGICAL FINDINGS IN ADULT FECES

BY C. P. ROBBINS, M. D.

WINONA, MINNESOTA

### IN TWO PARTS—PART II

*Bacteria.*—Normally, feces present a very luxuriant flora, mostly saphrophites. "Sucksdorff" estimates an average of 53,124,000,000 germs in a 24-hour stool. About one-third of the dry stool, normally, is bacteria, which amounts to about eight drams a day. The many varieties are stained readily with carbol-fuchsin and the Gram stain. They consist of all those forms belonging to the bacterium coli group, and others as cocci, fungi, yeast cells, bacterium, aërogens, *B. faceoles*, *B. alkiligens*, and bacteria florestens. Upon culture media the coli group grow very luxuriantly, while only 10 per cent of the other varieties grow on the same.

Pathologically, we find pus organisms as strepto- and staphylococci and bacilli and bacteria producing special diseases. The most generally recognized are *B. shiga*, *B. coma*, *B. cholera*, *B. typhoid* and its group, and *B. tubercle*. In feces when we find pus it is necessary to make culture studies if we wish to determine the predominant organism. We must also make animal experiments; and in this way we can find out the organism to determine the degree of virulence possessed by each organism, producing the disease. Staphylo- and streptococci found in pus suggest an ulcerated process usually found in dysentery.

*Bacillus Shiga.*—The bacillus Shiga is found in dysentery patients. It stains easily with dilute aniline dyes, and is non-motile. It is not decolorized by the Gram method. It grows upon all culture media, and upon agar it produces round flat

colonies, and appears white and moist in direct light, but when held up to the light has a bluish iridescence. Upon gelatine it shows a grape-leaf form and does not liquefy gelatine. It is distinguished from the typhoid bacillus by its non-motility, and its behavior in Barisecow's solution; from paratyphoid by its growth in sugar and neutral red sugar. From bacillus coli by its growth on milk litmus, whey, and sugar agar. Finally, it is Gram positive. Identified by agglutination with the patient's serum they indicate dysentery.

*Bacillus Cholera.*—This bacillus is about two microns long, one-half micron thick, actively motile, has a flagellum on the end, is decolorized by Gram, and stains well with any of the aniline dyes. They agglutinate with the patient's serum, and suggest cholera. Upon agar they develop after 18 to 24 hours at 37°, and when held up to the light look bluish. On gelatine after 22 hours at 22° C. the clear colonies appear to the naked eye like small bright points. Gelatine is slowly liquefied. Milk is not coagulated. Blood serum is liquefied. On the alkaline peptic water they grow luxuriantly. After 24 hours' culture a few drops of pure H<sub>2</sub>SO<sub>4</sub> is added and a violet coloration appears called the color-red reaction. The serum diagnosis affords the most valuable means of differentiating cholera vibrones from other vibrones, and this is done by the Pfeiffer's test.

*Bacillus Typhosus.*—When typhoid bacilli are found after preparing a special medium, they suggest typhoid fever; they agglutinate with the

patient's serum, are motile, do not coagulate milk; litmus whey slightly acid formation, clear. No fermentation in sugar agar, no fermentation or reduction in neutral red agar, their short rods about the size of a Shiga bacillus, stain easily with aniline dyes, decolorized by Gram. They are identified by the above characteristics, but differ from the paratyphoid A. B. in their biological characteristic and agglutination. They suggest typhoid fever.

*Bacillus Tuberculosis*.—The detection of tubercle bacilli is accomplished by stain smears of mucus or pus taken from the dejecta. It suggests that the tubercle has gained entrance to the intestinal tube by swallowing the sputum, or by tuberculous ulceration of the intestines. They are short rods, non-motile, and stain well with carbol-fuchsin and with Gram's stain.

*Functional Secretion*.—Normally, tripsin appears in the feces.

Pathologically, the absence of tripsin suggests loss of function of the pancreas. The diminished amount of tripsin suggests diabetes mellitus; increased amount of tripsin again suggests a marked inactivity of the adrenal system. The succus entericus in diminished amount suggests a catarrhal enteritis. The other ferments,—steapsin and amyllopsin,—are not tested from the stool, but from the duodenal contents. Diminished steapsin, or its absence, suggests catarrhal conditions of the duodenum, inability to metabolize fat. The absence of amyllopsin suggests poor starch-metabolism, intestinal dyspepsia, and catarrhal condition of the small intestines.

*Bile*.—Normally, urobilin.

Pathologically, urobilinogen, bilirubin, and biliverdin. When found suggest too rapid peristalsis of the biliary secretion through the intestinal tube, and occlusion of biliary passage if urobilinogen is found.

#### TABLES

##### Normally:

Amount—daily moist stool 100 to 250 grams; dry, 20 to 40 grams.  
 Color—brown and all shades of brown.  
 Odor—skatol.  
 Reaction—amphoric.  
 Specific gravity—1030 to 1060.  
 Number and form—cylindrical, 1 to 2 a day. Exceptions, vegetarians more than 2; absorption too complete, every other day.  
 Muscle fiber—small brown specks without any muscle characteristics.  
 Potato cells—none.  
 Fat—neutral and soaps.  
 Connective tissue—none.  
 Mucus—none.

Pus—none.

Blood—none.

Crystals—none except cholesterine.

Parasites—none.

Bacteria—one-third of the dry stool bacteria, mostly non-pathogenic.

Functional secretions—trypsin one-third casein dilution; amyllopsin, positive; steapsin, positive; bile, urobilin, succus entericus, positive.

##### Pathologically:

Amount—daily 50 to 1,200 grams moist stool; 10 to 100 dry stool.

Color—green stool suggests *B. pyocyaneus*; rapid peristalsis; excess of vegetables rich in chlorophyll. Reddish stool suggests blood in large intestine, ulcerations, vegetables as beets.

Gray stool suggests poor fat-metabolism or large amount of pus and mucus mixed with the feces, and hook-worm disease.

Chocolate stool suggests blood, excess of meat diet, or drinker of black coffee.

Brownish-red stool suggests drugs, such as sandal wood oil.

Light-yellow stool suggests milk diet, or such drugs as senna, santalin, rhubarb, gamboge, poor starch-digestion.

Black stool suggests bismuth, iron, or blood.

Blue stool suggests methylene-blue.

Golden-yellow stool suggests partly unaltered bile.

Green-yellow stool suggests rapid peristalsis, chronic enteritis, chronic colitis.

Odor,—putrid stool suggests decomposition of albumin; breaking down of pathological secretion.

Sour stool suggests fermentation of starch.

Ammoniacal stool suggests infected with urine or fistulous opening with bladder or ureter.

Cadaveric stool suggests gangrenous process.

Spermin stool suggests cholera.

Sweetish or gluey stool suggests amebic dysentery.

Extremely foul stool suggests chronic alcoholism.

No odor, but foul gas, suggests catarrhal dysentery.

Reaction—acid, starch, or fat. Alkaline, albumin, or pathological secretion.

Specific gravity,—above 1060, starch; below 1010, fat.

Number and forms,—constipation, see description of colitis, enteritis, enterospasm, and ileotyphilitis.

Absolute constipation, see description for ileus, paralysis, fissure, proctospasm.

Regular stool, different consistency, see description for subacute enteritis, colitis, peristaltic unrest.

Diarrhea, see description for ulcers, proctitis, cancer, colitis, motor neurosis, gastric achylia, parasites, bacterial infection, enteritis, membranous colitis.

Continuous diarrhea, see description for proctitis, dis. bladder and ureter, muscular weakness, paralysis of the sphincter, dis. cent. nervous sys. Alternation diarrhea and constipation, ileotyphilitis.

Muscle fiber,—disturbed absorption of proteid, disturbance of the succus entericus, and anatomical changes in the mucus membrane.

Potato cells,—secretory disturbance, catarrhal enteritis, intestinal fermentative dyspepsia.

Fat,—deficiency of bile, diminution or absence of pancreatic juice; excluding the above may suggest intestinal amyloid, intestinal tuberculosis, or tabes mesenterica.

Connective tissue—hypermotility of the stomach or bowel; excluding the above, hypo-achylia or achylia.

Excluding both the above, changes in the interstitial gastric tissue.

Mucus large in amount suggests disturbance of the sigmoid inclusions, and cone shape suggests membranous colitis; mixed with pus cells suggests ulcerations.

Mixed with food remnants, and bile stained, suggests small intestine inflammation.

Mixed with erythrocytes and leucocytes, and stained with bilirubin, suggests small intestine inflammation; with ameba suggests amebic dysentery.

Sago-like bodies suggest cholera, cholera nostras, catarrh of the small intestines with diarrhea; transverse abdominal pain with strips or shreds, suggests transverse colitis.

With large casts of the bowels are found in both acute and chronic conditions, depending entirely upon the epithelial cells they contain. These cells serve as an index to the degree of destruction.

Casts with inclusions and cone shape, without cells, suggest membranous colitis.

Casts with cells are found in diphtheria, tuberculosis, gastropnoia, nephropnoia.

With pus and blood are suggestive of dysentery, carcinoma, proctitis, parasitic, or bacterial infection.

Pus—Large amount unaltered from some abscess cavity; small amount mixed with mucus or blood suggests ulceration. If unaltered bile stain, small intestine ulceration.

Blood—Unaltered blood and large in amount suggests hemorrhage; small in amount and revealed only by chemical reaction suggests duodenal ulcer, follicular enteritis. Small polypi, slight intussusception, slight inguinal hernia.

Crystals—Biliary or intestinal calculi suggest, respectively, hepatic or intestinal colic.

Fatty acid crystals suggest poor fat-metabolism. Triple phosphate crystals suggest putrefaction of albumin, or the stool is infected with urine.

Hematoidin crystals suggest hemorrhage; the more the hematoidin crystals, the higher up the hemorrhage.

Charco-Leyden crystals suggest parasites or certain febrile conditions.

Parasites—Protozoa, ameba coli or hystolica; balantidium coli. Entozoa, the most common of the entozoa, are ankylostoma duodenale; ascaris lumbricoides, bothrocephalus latius; tenia echinococcus; oxyuris vermicularis, tenia mediocancelata; tenia solium, trichocephalus dispar.

Bacteria—Over 33 per cent dried stool pathogenic and nonpathogenic germs suggests auto-intoxication. Isolated strepto- and staphylococci suggest ulceration. B. Shiga suggests dysentery. B. coma of cholera suggests cholera. B. typhoid and its group suggest typhoid. B. tuberculosis suggests tubercular ulcerations.

#### Functional Secretions:

Trypsin—Absence of trypsin suggests loss of function of pancreas; diminished amount, localized disturbance of the Langerhan's glands, diabetes mellitus.

Diminished amount suggests any of the above conditions, or such intestinal disturbances as amyloid, tuberculosis or tabes mesenterica.

Succus entericus diminished suggests catarrhal enteritis or a decided change in the anatomical mucous membrane.

Steapsin—Steapsin, diminished amount, suggests catarrhal condition of the duodenum, inability to metabolize fats.

Amylopsin—Absence of, suggests poor starch-metabolism, intestinal dyspepsia, and catarrhal conditions of small intestines.

Bile—Unaltered suggests too rapid peristalsis of the biliary secretion through the intestinal tube.

#### TESTS

Amount—Weigh entire stool; take 5 grams of moist stool and evaporate over water bath to dryness; compute for total amount.

Color—No test.

Odor—No test.

Reaction—Use red and blue litmus paper to determine acid or alkaline reaction. Filter 5 grams of feces, use litmus as an indicator, and titrate with 0.1 normal NaOH solution or 0.1 HCl solution as per reaction. Get total acidity or total alkalinity.

Specific gravity—Weigh glass cylinder. Place small piece of feces in cylinder, then weigh again. Add known quantity of water in cylinder, and see displacement. Difference in weight times difference in displacement, times 100, gives specific gravity.

Muscle fiber—Place drop of specimen on glass slide with cover-glass. See muscle fiber with cross striations with serrated edge. So one gram of raw meat in gauze bag. Have patient swallow several of these bags during meal. Pick out gauze bags in feces, open one and spread contents on a glass slide, and if nuclei of muscle-cells predominate in specimen shows insufficiency of pancreatic secretion.

Estimation of albumin in feces. Take 5 grams of dry feces estimate nitrogen by the Kjeldahl test, multiply nitrogen found by 6.25, gives albumin in 5 grams of feces. Compute for the total amount.

Fermentation test: Place specimen of feces in Schmidt apparatus, or my modification apparatus, place in incubator for 24 hours, and if over one-third gas, with alkaline reaction, denotes pathological albumin decomposition.

Potato cells—Place specimen in Schmidt or my apparatus; place in incubator 24 hours the same as in muscle-fiber test; and with acid reaction and over one-third gas denotes starch-fermentation. Place small amount of specimen on glass slide with tincture iodine. Potato cells are plainly seen with centers all blue granules.

Estimation of starch: Take 5 grams of feces (dried) and heat with 50 c.c. of 10 per cent HCl, boil for half hour to convert starch into monosaccharides; filter, and wash with sufficient water to make the total as that of original amount. Neutralize, and filter with NaOH, and make up to 100 c.c. with water.



The sugar is then determined. The amount of glucose determined multiplied by 0.94 is the amount of starch in 5 grams of feces. Compute the total amount.

**Fat**—Place one drop of specimen on glass slide with two drops of acetic acid, then boil. Place cover glass over same and cool. Field filled with fatty acid crystals if abnormal. Estimation of fat: Five grams of moist feces are treated with 1 per cent acid alcohol, and evaporated to dryness to convey the soaps into fatty acids. The dried residue thus treated is placed in a Soxhlet apparatus and extracted with ether for 72 hours. The ether which takes up the fatty acids and fats is then evaporated and the residue of fats weighed. This gives the amount of fat in grams. Compute the total amount.

Another method: "Weigh out finely powdered or well-mixed moist stool. Saponify with KOH in alcohol (4 gm. of stick KOH and 20 cc. of 95 per cent alcohol). Dilute with 50 cc. of water and acidify with HCl (20 cc. of 20 per cent in 5 cc. portions). Shake out with ether, and wash ether extract. Distill off ether, and dry fatty acids. Take up with petroleum ether, filter, and titrate with N/10 alcoholic KOH.

cc. N/10  $\times$  0.0297

Calculation:  $\frac{\text{weight of substance taken}}{\text{cent tristearin.}} \times 100$  per

**Connective tissue**—White threads from the specimen placed on a slide with acetic acid under the microscope will soften, and finally disappear.

**Mucus**—Small specimen placed on a glass slide held up to the light will appear glassy; by the addition of acetic acid will appear more glassy—will not react to phosphorus by being made acid, will react to Fehling's. Under the microscope with osmic acid turns black; with thionin it turns violet, and all the rest of the field blue. By using half and half of neutral red and brilliant green 1 per cent solution mucus turns red, soaps rose, and all the rest of the field green.

**Pus**—One per cent sodium hydrate solution in methylene-blue stains pus cells blue.

**Blood**—Benzidin test: Benzidin 1 per cent solution acetic acid, boil, add a few drops of H<sub>2</sub>O<sub>2</sub>; pour the above over the ether extract of feces, color green.

**Aloin test**: Alcoholic extract of aloin; add a few drops of H<sub>2</sub>O<sub>2</sub>. Pour the above over the ether extract of feces, color red.

**Guaiaic test**: Alcoholic extract of guaiac wood; add a few drops of H<sub>2</sub>O<sub>2</sub>. Pour the above over the ether extract of feces.

**Crystals**—Concretions: biliary, intestinal. Pulverize a stone; then boil in water; by this means acids removed. The residue extracted by equal parts of alcohol and ether. The cholesteroline is dissolved. The residue contains bile pigments, and may be recognized under the microscope. The alcohol and ether containing the dissolved cholesteroline is allowed to evaporate, and this residue under a microscope will show the rhomboid plates of cholesteroline. Concentrated sulphuric acid allowed to run on the slide, the cholesteroline crystals will dissolve and assume a carmine color. All these biliary concretions are compounds of calcium. Intestinal concretions consist of a nucleus as fruit-pips, blood clots, particles of feces, etc., with layers of salts of earthy or triple phosphates. A

small stone on section will show this characteristic. A small portion is ground up to a powder and placed on a platinum space, and placed over a flame. If mostly organic, it will burn up; if it merely turns black, it shows inorganic substance. If a portion of the powder is added to hydrochloric acid and heated, and gas develops it consists chiefly of carbonate. If gas does not form the acid is poured off, and some of the residue is placed on a slide and examined under the microscope and the coffin-lid phosphate crystals can plainly be seen.

**Fatty Acid Crystals**—Place a drop of stool and two drops of acetic acid on a cover-glass, and drop a cover glass over, heat, then cool, and note fine stellate crystals arranged in rosettes.

**Triple Phos. Crystals**—On grinding the stool with water in a mortar, the gritty sensation in some is triple phosphates. Put drop of stool on a glass slide, drop cover-glass on same, and through microscope note triple phosphates. For triple phosphates due to urine, macerate the stool with water, filter, add HNO<sub>3</sub>; then add AgNO<sub>3</sub> heavy precipitate, chloride light precipitate found in all feces.

#### TESTS

**Charcolyden Crystals**—A drop of stool on a glass slide, and drop a cover-glass on; spear or lance shape charcolyden crystals can be seen under the microscope, if present.

**Parasites**—A drop of stool on a glass slide, with a drop of normal salt solution, brings out the ova of all parasites of the entozoa. The protozoa can be seen under the microscope to have distinct movements if glass slide is warmed after the preparation has been placed upon the slide.

**Bacteria**—Two cc. of feces are rubbed up with 30 cc. of 1½ per cent solution of HCl. Place in centrifuge and whirl for one minute. The bacteria will remain in suspension in the liquid, which is poured off. The sediment is again rubbed up with HCl solution, and again centrifuged the same way. The procedure is repeated several times until the liquid is clear. This acid solution, holding in suspension the bacteria, is then mixed with an equal amount of alcohol, and placed upon a water-bath and allowed to remain at 40 degrees for 24 hours. This mixture is evaporated to half its volume, the remaining parts placed in a centrifuge, and whirled for five minutes. The bacteria are now deposited, the supernatant liquid is poured off, and the residue is dried at 100 degrees and weighed. Compute for the total amount.

**Bacillus Tuberculosis**—Particles of blood-stains or purulent placed upon a glass slide and stained with carbol-fuchsin.

**Bacillus-Shiga**—Inoculate two plates from the stool; the colonies that develop in 24 hours are marked and are inoculated into other plates. Those that grow at the end of 28 hours are inoculated into glucosagar and litmus mannite sugar. If any of these tubes show fermentation at the end of 24 hours they are placed aside. From the tubes showing no fermentation litmus milk, litmus mannite, and bouillon are inoculated. The bacillus Shiga will render milk slightly acid, later changing it to alkaline, the litmus mannite remains unchanged. A true bacillus Shiga from the later tubes will agglutinate with a patient's blood.

It will not form gas in milk, and will not coagulate milk.

**Bacillus Comma of cholera**—From a prepared specimen of stool on a glass slide stained with any of the aniline dyes the comma bacillus will be seen with a flagellum at one end actively motile two microns long. Decolorize by the Gram stain.

**Typhoid Bacillus**—Five grams of extract of beef, 5 grams of sodium chloride are dissolved in one liter of boiling water. Five grams of agar are added and 80 grams of gelatine after the agar is dissolved. Enough of HCl acid or NaOH to bring the reaction neutral, 5 per cent of normal acid; to this are added two eggs and water 25 cc., the mixture boiled and filtered. To filtrate add 10 grams of glucose; place in tubes and sterilize. Stab cultures from the liquid stool are made into the tubes. The typhoid organism is the only one that has the power to cloud this medium without showing streaks or gas bubbles.

#### Functional Secretion:

**Trypsin test**—Take 5 grams of feces, macerate with 45 grams of sodium carbonate solution, 1 to 1,000; then filter. Take five test-tubes; place in each test-tube 10 cc. of the following solution: 1 gram of casein, 1 gram of sodium carbonate, 1 gram of chloroform, 1,000 cc. water. Add to each test-tube the feces filtrate, in one-tenth dilutions. Place test-tubes in incubator 12 hours, and test each tube next day with 1 per cent solution of acetic acid; up to the third dilution the test-tubes should show a milky appearance, if normal.

**Succus entericus test**—Give the patient cubes of raw meat sewed up in a gauze bag. Recover bag in feces, and spread out the contents of one bag on a glass slide. If nuclei of muscle fibers disappear, succus entericus diminished or absent.

**Steapsin test**—Recover duodenal secretion by means of a duodenal bucket, and use a drop of neutral milk and two to three drops of duodenal secretion; neutralize this if acid, and add a small piece of blue litmus agar. This is all placed in a miniature test-tube, and placed in an incubator until the contents reach blood-pressure. In 20 to 30 minutes it will turn red if fatty acids are present.

**Amylopsin test**—Recover duodenal secretion by means of a duodenal bucket; a few drops of this secretion with a few drops of boiled starch, equal parts at blood temperature, within a half hour add a few drops of weak solution of iodine. In the presence of starch it will be blue color if amyloextrin, or purplish-blue if rodestrine, or red color if erythro-dextrin.

**Bile test**—Feces mixed with mercuric chloride will turn red after standing, if normal, which is urobilin. **Urobiligen**—5 per cent di-methyl-amidobenzaldehyde, 20 per cent HCl, feces and water. Color, rose-pink; exception to this is indol, but can overcome by mixing feces with benzene instead of water, and test as before. **Bilirubin**—Feces 1 gram, sodium sulphate 1 gram, BaCl 10 per cent with  $\frac{1}{2}$  gram Nakajama reagent 2 cc., 4 cc. of solution of HCl 1,000 cc. in ferric chlo. 4 cc., color green. **Biliverdin**—Above, all negative, biliverdin present.

## VARICOSE VEINS\*

By DONALD C. BALFOUR, M. D.

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Varicose veins indicate a chronic dilatation of the veins, the most commonly affected of which are the hemorrhoidal, the spermatic, and the long saphenous. I shall briefly review some of the important features of the condition when concerning the long saphenous and present statistical evidence of the results of surgical treatment.

The condition usually occurs in the middle decade of life, although I have observed several patients who were under twenty-five years of age. The ratio of male and female in this series is three to one.

Pelvic tumors, diseases of the heart, and operations on the extremities (osteomyelitis, fractures, etc.) were predisposing causes sufficiently rare in this series to require mention only. Pregnancy was an unquestioned causative factor. Occupation, particularly when it necessitated prolonged erect position associated with hard labor,

was by far the most apparent etiologic factor in the greater number of our cases. Moreover, the anatomic and physiologic relationship of veins, muscles, and fascia in the lower extremities, is also important, because, mechanically, they offer abundant opportunity for exciting causes to produce pathologic results. If such excitants, particularly occupation, are not modified or some treatment is not instituted, the initial distention of the veins increases, and becomes permanent with the destruction of the action of the valves. This chronically over-filled condition of the veins produces a primary hypertrophy of the elastic tissues to compensate for the increased pressure, which is followed by atrophy, dilatation, and secondary fibrous changes in the wall of the veins.

Variable changes of the skin occur in practically all cases of varicose veins. Often the skin, particularly above the ankles, is shiny and has a characteristic thin, pale, translucent appearance. Later, it frequently becomes hard and has a ten-

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.



Fig. 1. Normal internal saphenous vessel, with schematic arrangement of valves.

dency to adhere to the subcutaneous connective tissue, and the chronic hyperemia sets up a pigmentation which in long-standing cases becomes dark red-brown in color. The skin is exceedingly prone to become eczematous; the surface varies from moist to the dry, scaly type.



Fig. 2. Form and location of incisions for stripping internal saphenous, with mass dissection below the knee.

The frequent association of chronic ulcer is well known. In the present series 40 per cent of the patients had ulcers on one or both legs. These ulcers occur on any part of the leg below the knee, the most common situation being on the inner and anterior aspect just above the internal malleolus. The chronic congestion of the



skin and subcutaneous tissue is a strong predisposing factor to the formation of the ulcer; and a slight injury may be sufficient to produce a lesion very resistant to healthy healing. If such ulcers are neglected, as so often observed in the laborer, they increase to a great size, occasionally almost encircling the limb. They are also subject to malignant degeneration, a sequel which is, however, seen with surprising rarity. Pain associated with the varix is a common symptom. This may be marked, even in cases where the varicosity is not extreme.

*Selection of Cases for Operation.*—The large percentage of patients presenting themselves for treatment are suitable for operation, but, nevertheless, careful selection is necessary. With few exceptions, when it can be demonstrated that the deeper veins are competent to readily return all the venous blood, even though it is undoubtedly true they are involved in the same process in a considerable percentage of cases, the removal or ligation of the superficial veins is indicated. The simple and efficient test proposed by C. H. Mayo some years ago is of great value. If the patient can be relieved, or made fairly comfortable, by the use of a well-fitting elastic stocking, the removal of the superficial veins will usually be followed by good results. Further indications for operation are chronic ulceration, neuralgia, and recurring attacks of phlebitis with thrombosis. The most satisfactory results following operation have been in cases in which the trunks of the veins stood out prominently and the stasis was well marked, while failures have occurred when operation had been undertaken in cases in which a general phlebitis had inaugurated a permanent edema, with little evident enlargement of the veins. Among undesirable types for operation are cases following typhoid, and those associated with great dilatation of the internal and external saphenous and of the suprapubic veins.

Pre-operative treatment is occasionally advisable, particularly if there is extensive ulceration, or in cases of recent phlebitis where redness and pain, marking local thrombosis, still exist along the course of the vein. If such patients are put to bed for a few days, with elevation of the feet, the post-operative convalescence will be shortened and a good end-result more probable.

*Operation.*—Many procedures have been devised for the surgical treatment of varicose veins. They vary from simple ligation (Trendelenburg<sup>1</sup>, 1891) to total excision (Madelung<sup>2</sup>,

1884) or to anastomosis between the saphenous and femoral (Delbet<sup>3</sup>, 1906). The procedure advocated by Schede<sup>4</sup> (1877), namely, division of the veins between ligatures, is still probably the most valuable when the vein cannot readily be removed.

It is generally accepted, and proved by results, that the subcutaneous extirpation of the long saphenous is the most practical and effectual method of dealing with the condition. The procedure introduced by C. H. Mayo<sup>5</sup>, in 1900, of stripping the vein by means of a metal ring on a carrier about twelve or fourteen inches long, has proved a boon in simplifying the operative treatment of varicose veins. Modifications of this instrument, namely, that of Babcock<sup>6</sup>, have been used with success. The stripper may be tried in all cases. The operation is conducted as follows:

The long saphenous vein is isolated and divided near the saphenous opening, and the proximal end ligated. The distal end is then mobilized as much as possible by means of a long artery forceps of the Murphy type, and the ring of the stripper introduced over the end of the vein. By means of combined gentle traction on the vein with forceps, moderate forcing of the instrument along its course and with the spin supported by the spread-out hands of an assistant, being particularly careful when the larger branches of the saphenous are encountered, it is possible in most instances to strip the vein down the entire length of the instrument. By forcibly pressing the ring outward against the skin and incising carefully on it, the vein can be picked up and brought out through the small buttonhole incision, and the stripper withdrawn through the first incision. The vein can then be re-threaded on the stripper, and can often be stripped down to one or two inches below the knee where, however, the main trunk has decreased in size so that the stripping process cannot be continued without breaking the vein. (Figs. 1, 2, 3.)

If, as occasionally happens, the saphenous breaks high up, the stripper is discarded, and the trunk picked up through a small incision in the lower third of the thigh, and there ligated. The further procedure in either instance preferred in our Clinic is a partial Schede operation for the ligation of the veins of the calf of the leg. A spiral incision, extending from a point close to the anterior border of the tibia continued backward and downward to a point about the middle of the

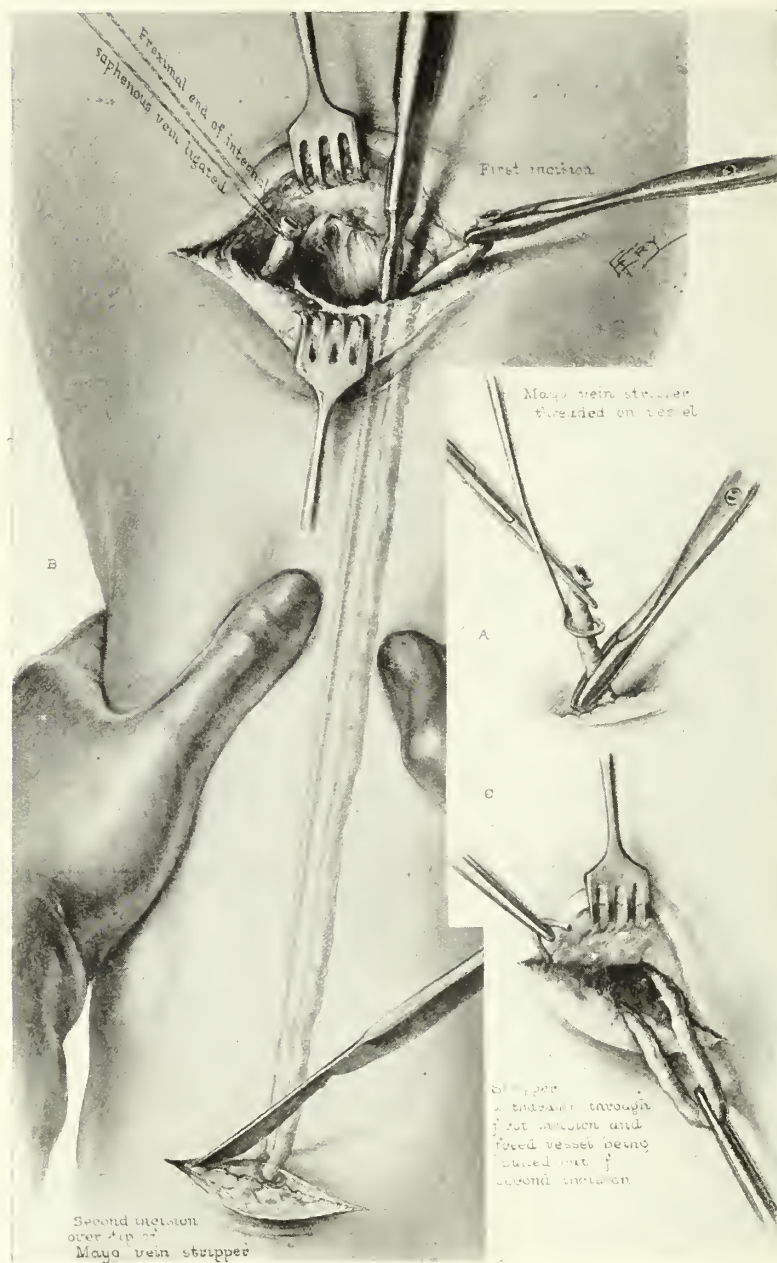


Fig. 3. Subcutaneous stripping of the vein. Tension on vessel and overlying integument.

calf, divides all the main branches of the long saphenous at this level, and gives an opportunity to dissect out any masses of thrombotic or greatly dilated veins, with the overlying skin, if necessary. Having cut these veins between forceps, the second incision is made about three inches above the internal malleolus and of sufficient length to pick up all the superficial venous branches in that vicinity.

In cases complicated by ulcer and in which the

patient has not been kept in bed long enough for the ulcer to heal, local surgical treatment is indicated. Ochsner's<sup>7</sup> method, a series of short incisions close to and paralleling the margin of the ulcer and encircling it, is most valuable. We have rarely found skin-grafting necessary.

Although the operative treatment of varicose veins has usually been accepted as satisfactory, it seemed worth while to investigate the ultimate results, as it is not uncommon to find, on careful



investigation in various other surgical procedures, that the results are not quite as successful as had been supposed.

The data for this report on the results of the operative treatment of varicose veins have practically all been obtained by correspondence with the patients. The figures may be considered conservative, for experience has shown that in such investigations the patient is very likely to exaggerate minor unrelieved conditions and to minimize major benefits.

Of 256 patients operated on from January 1, 1909, to January 1, 1914, letters were received from 161, thus in no case has the lapse of time since operation been less than one and one-half years. In 68 patients the condition was associated with varicose ulcer; in 93 there was no ulcer. Thirty-nine (57.4 per cent) of the 68 patients having ulcer were cured, that is, the ulcer had healed, the veins had disappeared, there was no swelling of the feet, and the patients were able to carry on their work without pain; 16 (23.6 per cent) reported great improvement, the ulcer having healed in the majority, but minor complaint of occasional swollen feet after a long day's work, or of some aching in the legs, so that 80 per cent were either cured or improved. In 13 (19 per cent) the results were definitely unsatisfactory. The ulcer had either failed to heal or there had been periods of complete healing, then pain and swelling sufficient to make the prolonged erect posture uncomfortable. Elastic bandages kept some of these patients in a fair degree of comfort, but the operation itself had failed.

In the 93 patients without ulcer, better results were obtained; 67 (72 per cent) were quite cured, 16 (17 per cent) were improved, while 10 (11 per cent) were unsatisfactory, so that in practically 90 per cent of this group the results were good.

The causes of failures in the series may have been due in part to the selection of cases, incomplete operation, or lack of care in after-treatment. A serious complication occurring with some frequency in the long-standing cases is, that the chronic congestion and disability incident to ulcer formation undoubtedly predispose these patients to flat-foot, and the breaking down of the plantar arch is associated with the familiar pain common to this deformity. The removal of varicose veins in such cases may be successful to the extent of getting rid of the veins, but the expected relief from pain is, of course, not derived.

There were, unfortunately, two deaths in this

series from pulmonary embolism, the danger of which in these cases has perhaps been unwisely minimized. This 0.7+ per cent, though small, is not negligible. There was nothing in connection with the operation or the after-care to explain the accident in these two cases. One patient died on the seventh day, before he had been out of bed; the other, two weeks following operation, when she was about to leave for home against advice.

The operative technic and the post-operative treatment are of importance. The incisions are covered with plain gauze held by strips of adhesive and the limb, including the ankle, firmly bandaged. Slight elevation in bed is advisable; most patients are out of bed on the eighth day. They are not allowed to be on their feet until they are equipped with elastic bandages, which they have been taught to apply. These are used according to the demands of the individual case, from six weeks to six months.

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#### DISCUSSION

DR. EARLE R. HARE (Minneapolis): As I have been requested to open the discussion on this paper, there are a few things I wish to add in relation to the subject of varicose veins. In the first place, the essayist has stated that the veins usually involved are the spermatic and the veins of the lower extremity. There are others. Those of the broad ligament, those of the esophagus, and those in other situations of the body are likewise involved; but they are less amenable to treatment than the ones spoken of. If we remember the situation of the veins in the lower extremity, we will find that they are largely superficial, namely, the long and short saphenæ. These are the ones which are most frequently involved because they are surrounded only by the soft structure, the superficial fascia. The deeper veins, namely, the venæ comites, which accompany the arteries of the lower extremity, are surrounded by muscle structures; and these are held in position by the fascia lata, which forms a sleeve for the muscles and gives these veins adequate support, so that they are infrequently involved in the varicosity.

In connection with the structure of the superficial veins we have fine valves situated at distances varying



from three to six inches. If one valve becomes incompetent, it doubles the length of the column of blood and increases the intravenous pressure; the second valve becomes incompetent, and trebles the length of the column and further increases the pressure, and rarely do we have a reaction of that vein to its normal condition and the competency of the valves re-established; and so the varicosity or the dilatation becomes a permanent one.

The etiology of this condition is especially interesting. Increased intravenous pressure, it goes without saying, is one of the causes. The second cause is thrombosis in some other portion. For instance, if we have thrombosed deep veins, we will have dilatation in the superficial veins. This is one of the conditions that have been mentioned as bad for operative intervention. We do not, where we have incompetency of the deeper veins, get successful results in the surgical treatment of the superficial veins. The question of thrombosis is of interest because it may occur as the result of some toxin. It usually does not occur because of some injury to the endothelium of the vein. We have been used to thinking that injury to the endothelium would be followed by a thrombosis. I think it has been pretty definitely established by the work of McLean that such is not the cause. You can clamp a vein or you can reclamp it, or you can injure the endothelium, and not have a thrombus formed. You can introduce a sterile silk thread, and still not have a thrombus formed; but if you introduce an infected silk thread or if you injure the endothelium and introduce an infective organism, you will have a thrombus formed, so that the etiology, it seems to me, revolves around the one factor of infection. A focal infection in some other part of the body will deliver the toxin to the vein, and this will be followed by a thrombus, or the blood-stream will be filled with an infective organism, which will be carried to the vein, a thrombus will form, and varicosity will result.

It has been my privilege during a number of years of dispensary practice to see a large number of varicose veins accompanied especially by large ulcers very difficult to treat. We find that the ambulatory treatment of these conditions is entirely unsatisfactory. The treatment resolves itself into a postural one. If the patient can be placed in bed, the extremity elevated, and supportive treatment established, the ulcers will heal, and the patient will be relieved so long as supportive treatment can be followed; but as soon as it is stopped the condition recurs, and the patient has his trouble over again. I believe that the surgical treatment in a large percentage of these cases is more satisfactory than medical treatment, because of the difficulties of keeping the patient flat on his back. If we could give the supportive treatment to the superficial veins, such as Nature has provided for the deeper veins, we would have much greater success in the treatment of varicose ulcers and varicose veins.

DR. L. C. BACON (St. Paul): These cases give us a great deal of trouble. They are always very interesting, and I was particularly interested in two things brought out by Dr. Balfour, which I wish to emphasize, namely, rest and elevation of the limb, and also in Dr. Balfour's reference to the Ochsner incision. It brings to my mind the point that there is very little that is new in medicine. Twenty-five or thirty years

ago Donald MacLean not only taught rest and elevation of the limb, but he made incisions of from one-eighth to one-quarter of an inch apart, around the margin of the ulcer. I think that the principle involved in the two procedures is the same. He gave the credit for this to Syme. Many of these cases—all of them practically—can be very satisfactorily treated if the patient has sufficient rest and you can control him and afford support afterward, but that is an impossible thing to do with many patients, and surgical treatment is then advisable.

DR. A. C. STRACHAUER (Minneapolis): Rest is a very valuable form of treatment in nearly all of the ills that man is heir to. In an experience with a vast number of varicose veins and large ulcer cases at the University Dispensary I have found that most of them can be cured by simple ambulatory methods. The patient is instructed to soak and thoroughly cleanse the leg before beginning the treatment. We usually carbolicize the ulcerated area with ninety-five per cent carbolic acid, and then dress with balsam of Peru, until the granulation tissue is sufficient in quantity and bright-red in character. After obtaining a healthy granulation-tissue base, which the balsam stimulates, efforts are directed to the stimulation of epithelization. Dusting the area heavily with calomel powder and strapping tightly with incompletely encircling adhesive straps one inch wide, applied well above and below the ulcer, usually give rapid results. If scarlet-red and ammoniated-mercury ointment be employed, they should be applied under guttapercha covering to prevent the curetting action of the gauze on the developing line of epithelium. Skin-grafting will hasten this stage of the treatment, and is performed under local anesthesia, the Reverdin graft usually being employed. The application of equal parts of the glycerite of tannin and distilled water to the healed ulcer daily by the patient, toughens the new, delicate skin and prevents breaking down.

While most of the ulcers can be cured by the treatment as outlined, and the subjective symptoms from the veins be relieved by supportive dressings, the ulcers are prone to recur, and the only way to permanently cure the case is to eradicate the cause, which is the varicose vein. Stripping the veins is the operation of choice in most cases, but is insufficient in the severe cases. I am now referring to the large, extensive ulcers in which even amputation of the extremity may be considered. We have found that the encircling incisions, just as for circular amputation of the extremity, extending right down to the fascia, dividing all of the superficial veins, give satisfactory results. Such incisions are made above and below the ulcer, one just below the knee and in some cases above the knee. Every superficial vein is divided and ligated in this operation, and there is no opportunity for collateral development. The blood within the veins becomes clotted, and later organizes and forms a fibrous cord.

Dr. Balfour's record of only two cases of pulmonary embolism is extremely low, and why? Because in the operations which have been practiced in his clinic the saphenous vein is always ligated at its entrance into the femoral vein. I want to call your attention to this important step in the operation, because many of the men who practice multiple ligations and the various radical operations neglect to ligate the vein at the saphenous opening. It makes no difference what type of operation is instituted, the vein should always be

first ligated at the saphenous opening, and the patient kept in bed for two or three weeks following the operation to prevent embolism.

Post-operative instruction and care in surgery is a sadly neglected branch of our practice. Varicose ulcers are more common in the ordinary walks of life. These people are not as clean as they should be, and they should be instructed to keep the limb very clean to prevent recurrence. Scratching the limb is prohibited. If an eczematous condition develops, I apply one-half strength ammoniated-mercury ointment. Massage of the limb by hand or vibrator is beneficial. Attention to the bowels is of great importance. Those people who are constipated and go about with the rectum filled with fecal matter, causing pressure on the veins, should have this condition corrected. A little digitalis sometimes helps patients along in years in stimulating

the heart and in maintaining a cure after it has been established.

DR. BALFOUR (closing): I have nothing to add, but must thank Dr. Hare for his discussion, and particularly that he has drawn attention to probably the most important point in etiology, namely, the question of thrombosis, which, although it has not been settled yet, promises to throw a good deal of light on the subject of the causative factors of varicose veins.

I wish to thank Dr. Bacon for setting me right as to the historical side of the operation of incising around the ulcer.

I am glad Dr. Strachauer emphasized two points, namely, high ligation of the saphenous veins and the great importance of getting all the branches of the vein, if necessary, encircling the limb.

## ENDOSCOPIC SURGERY OF THE ESOPHAGUS AND RESPIRATORY TRACT\*

BY FREDERICK ROOST, M. D.

SIoux CITY, IOWA

Inquiries and observations made during the past year at special clinics and hospitals revealed the fact that this Middle Western section is well up with the times in modern equipment. Laryngoscopic, esophagoscopy and bronchoscopic equipment are fairly well in evidence. At a small western city I recently witnessed a laryngoscopic clinic that would have been a credit to any large medical center. I recite these observations with pride, and as testimony that progressive medical men were quick to adopt and utilize a method which marks an epochal advance in surgery.

Laryngeal examination and surgery in infants and children, heretofore practically impossible, is now comparatively easy of accomplishment with the direct endoscopic method. Procedure with the suspension apparatus is a still further advance, in that it permits the free use of both hands of the operator. The latter method requires, however, more skill and manipulative training; yet no endoscopic equipment is complete without it.

The easy approach to ordinarily inaccessible objects and foci of disease should make an imperative appeal to every surgeon, special or general.

Briefly summarized, its utility is especially emphasized in the following:

1. Foreign bodies inhaled and swallowed.
2. Diseases of the larynx, malignant and non-malignant.

3. Laryngeal tuberculosis.

4. Stenosis of the larynx or trachea.

5. Diseases of the esophagus, stenotic and non-stenotic.

6. General diagnosis.

Foremost among the aids of endoscopy, are the finding and the removal of foreign bodies, either swallowed or inhaled. Before the advent of direct sight, it was an awkward and sometimes blind groping in the esophagus and larynx for the foreign object, or tracheotomy if lodged in the trachea or bronchi. In the majority of instances, inhaled foreign bodies occur in children where indirect procedures are difficult or impossible. Direct sight affords the operator an accurate and clear presentation of the foreign body, and also allows one to manipulate the object into proper position for easy extraction. Lastly, we are able to work with straight instruments in a straight axis.

Removal of foreign bodies from the hypopharynx and upper end of esophagus where they are usually found if lodged, is easily performed. The same is true of the larynx. The operation is so simple that no anesthetic, either local or general, is required. I shall refer to the question of anesthesia and posture later. It is not the object of this paper to go into detail as to the technic of the various operative procedures. That may be left to the text-books.

Foreign bodies in the trachea and bronchi present a more difficult problem. Experience is required. Aside from the question of diagnosis

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and location of the foreign body, we are sometimes confronted with complications, such as pneumonitis, the extreme youth of the patient, and a choice between upper and lower bronchoscopy. Distinction of judgment is necessary. Upper bronchoscopy, or the removal of the object per vias naturales, is becoming more and more possible through improved instruments and greater skill. Brunings' general observation that upper bronchoscopy is far more difficult as compared with the lower method, that the tube is less mobile, and that the patient is much more inconvenienced in the former, can no longer be held correct.

Mosher and others elect tracheobronchoscopy in all cases under three years of age. A competent and experienced bronchoscopist whom I know, puts the determining age at five years. In reviewing the published lists of successful high bronchoscopic operations by Chevalier Jackson, we are forced to the conclusion that the dexterous operator can very often deliver the foreign body per vias naturales in patients one year of age and under. While laying no claim to special dexterity, I myself have performed upper bronchoscopy successfully in a child less than one year of age. Experiments have proved that the range of motility of a bronchoscope is not increased by a tracheotomy insertion.

The nature of the foreign body should be considered. I would elect tracheobronchoscopy especially for such bodies as beans and kernels of corn, in patients extremely young. These bodies are often not fixed, are difficult to grasp, and invariably easy to remove by the lower route. I have had several of these cases two years of age and less.

*Diseases of the Larynx, Benign and Malignant.*—In diseases of the larynx, peroral autoscopia has brought to us perhaps its greatest usefulness, particularly in the case of our infant patient. We can now base our diagnosis on direct sight. The cause of laryngeal stridor may be directly searched for and found, whether due to the exaggerated infantile larynx or to other anomalous conditions, such as paralysis, congenital goiter, etc.

All laryngeal patients should be examined by the indirect method when possible, but for laryngeal surgery we will choose the direct route, and many larynges are not accessible by any other. In this field it is a distinct surgical extension.

In the scope of this essay I can only mention the cardinal indications and in limited detail.

Autoscopy is applicable in cases of papillomatous or other benign laryngeal tumors, in ulcers and infiltrations, and in defining and treating portions of the larynx not easy of access, such as the posterior wall, the subglottic space, or the lower surfaces of the vocal cords—in all cases requiring a general anesthetic.

While thyrotomy, already in use for intrinsic malignancy, is still yielding the best results, Jackson says the growth's limitations and whether it involves the party wall, can best be determined by autoscopy. Contrary to Semon, he sees no contra-indication to the removal of a specimen when working direct. Also, Jackson lays stress on a careful examination for lymph-nodes with the esophagoscope as indicating malignant leakage.

*Laryngeal Tuberculosis.*—Tuberculosis of the larynx, with its dysphagia, sleeplessness, and cough, is always a problem. In cases where the galvanocautery and excisions are required, the direct method is invaluable. The cautery puncture can be accurately placed and controlled. Excisions are easily performed. With the suspension laryngoscopy, both hands are free to execute our will, and sight is direct.

On a recent visit to a clinic where such material is plentiful, I was told that excision and curettement operations under the suspension method are yielding brilliant results. The cautery or galvanocautery was no longer used, except for small remaining circumscribed areas. Excision of the epiglottis was similarly performed. Heretofore the cases with excessive infiltrations of the larynx, had made an unsatisfactory progress with the ordinary methods. During the course of these treatments, the patient is cautioned never to speak above a whisper. In many cases I prefer the laryngoscope for local applications, and for this kind of work it bids fair to become a routine, as I find patients tolerate it quite well.

*Stenosis of the Larynx and Trachea.*—Lesions causing acute stenosis are usually found in the larynx. Edema or temporary inflammatory processes are the most frequent causes. We also have the congenital forms mentioned before. Status lymphaticus has been often named, but direct technic has shown us the real lesion locally. However, it is the chronic type of stenosis that particularly interests the laryngoscopist. Tracheotomized or intubated patients are sometimes compelled to continue to wear their tubes. Among the causes necessitating the continual use of a cannula may be mentioned spasm, paralysis,



neoplasms, thymic or thyroid compression, tuberculosis, diphtheria, and syphilis. In all of these forms we may have an encroachment on the lumen by edema, infiltration, or the formation of new tissue. Fibrous bands or granulations may form after the wearing of a tracheotomy tube. Direct sight facilitates removal of fibrous bands, or granulomata, or any other surgical measures we wish to institute. Also a ready means of diagnosis.

*Diseases of the Esophagus, Stenotic and Non-stenotic.*—In pre-autoscopy times, diseases of the esophagus were diagnosed by deduction, which was perforce guesswork, and local treatment was practically precluded. Röntgenology is a valuable supplement, but of little value alone.

The esophagoscopist has encountered many unsuspected lesions. Timely discovery is important if we hope to cure these cases. Diverticula, syphilis, tuberculosis, spastic affections, and ulcers are amenable to early diagnosis and successful treatment by the direct method. Without it, we are hopelessly ineffective.

Esophageal diseases have been classified as stenotic and non-stenotic for convenience. Non-stenotic lesions may become stenotic, and some types of stenosis are only clinically so, in that the patient is unable to swallow liquids.

There are no contra-indications to skillful esophagoscopy. Dilatations of strictures or probing into diverticula should be done under direct sight. Mosher has given us a fine illustration of the surgical cure of a diverticulum. Blind openings made through a diverticulum are sure to result in media stenitis. The Jackson sign, the filling up of the pyriform sinuses with fluid in a high degree of stenosis, has been evolved by esophagoscopy. Direct examination of the esophageal side of the larynx in malignancy and tuberculosis is a valuable adjunct in some cases. A laryngologist has recently recounted to me a rare discovery,—a concurrent carcinomatous and tubercular involvement of the esophagus. He suggests the possibility of tuberculosis being a more frequent offender in the esophagus than heretofore supposed. The probability that some of our supposed malignant cases were really tubercular cases is inferred.

*Anesthesia.*—While the question of anesthesia is an important one in endoscopic procedure, operators differ in both choice of anesthetic and degree of anesthesia. The main requisite is the abolishing of reflexes, such as gagging and cough. Dexterous operators, like Chevalier

Jackson, require little or no anesthetic in children in ordinary laryngoscopy and bronchoscopy. The fear of reflex arrested respiration, the "vagus reflex," he thinks is groundless. On the other hand, Killian uses a general anesthetic in nearly all young children when doing a bronchoscopy, and in more than half of his laryngoscopy cases. It may be said that general anesthesia is in favor here in children. Most adults may be controlled by local anesthesia. A general anesthetic is dangerous in dyspneic and diphtheria patients. Infant patients do not tolerate cocaine well. Jackson holds that if anesthesia is to be used, direct laryngoscopy will never reach its full degree of usefulness, because anesthesia makes a major procedure out of a minor.

*Posture.*—The position of a patient may vary. It depends upon whether we wish to examine the respiratory passage or the gullet. Age is a factor, and also is the personal equation. Brunings likes the sitting posture. American operators favor the recumbent position, especially for children. Jackson uses the dorsal recumbent position for laryngoscopy and bronchoscopy procedures. It has been said that this reverses our preconceived and accustomed picture of the field. I use this position, and have not noted any inconvenience or embarrassment through this fact. For an adult in an unanesthetized esophagoscopy, the sitting posture is favored.

*In General Diagnosis.*—There are occasions when the services of a laryngoscopist are required to assist the internist. Congenital heart lesions may affect the recurrent laryngeal. Thymic or thyroid compression may be the cause of a dyspneic. The blue baby is not always caused by persistence of the foramen ovale, but may be due to a laryngeal stenosis. Our information on bronchial asthma is largely theoretical. Direct study of morbid anatomy in the lung promises to reveal a good many things heretofore unknown. Therapeutic applications have been applied through the bronchoscope, and pulmonary abscesses evacuated.

#### DISCUSSION

DR. L. N. GROSVENOR (Huron): Dr. Roost has given us a very fine résumé of this particular line of work, and shows us very clearly the marvelous improvements and progress that have been made in throat work. His paper brought to my mind how little was done in 1889, when I graduated, but since that time marvelous progress has been made in all lines, and especially in eye, nose, and throat work.

As to the Smith operation for cataract and trephining for glaucoma: it is a comparatively new thing. A very large number of these operations have been done

in India by Smith, and great progress has been made in ophthalmology. Up to within recent years very little progress was made in ear work. Dench did some excellent work, but now some remarkable work is being done on the labyrinth.

As to operations on the nose: when I graduated in 1889 they were doing the Asch operation. When I studied diseases of the eye, nose, and throat, the septum was coming to the front, so I became well acquainted with the work of such men as Freer, Ballenger, and others. Then work in connection with the accessory sinuses has been wonderfully developed. In the surgery of the throat it was formerly the custom to do tonsillotomy, simply removing a slice of the tonsils. Now, we resort to the Sluder method of removing the tonsils and to the use of the snare.

In laryngeal work we have seen considerable development and progress in the last few years.

In 1896 Kierstein wrote an article on the endoscope which was subsequently translated and a small book was made of it. I remember buying it at the time. I looked up the work in 1896 and 1897 that had been done on endoscopy. He devised a laryngeal speculum which is still used today, but modified by some by using tubes with it, yet he told how to use the instrument. He had a larger instrument than the one generally employed with a curved beak, and went down straight. That was the first of that work which had been published, but since then wonderful strides have been made. I was very anxious to get one of these specula at that time. I did not know anything practically about their use, so I did not get started at it. In those days we could not get the instruments.

DR. J. D. LEWIS (Minneapolis, Minn.): Dr. Roost seems to have covered the subject as fully as it is possible for a specialist to do, and yet make it intelligible to men who are not familiar with this work. The bronchoscope and esophagoscope are now being used as a routine in the examinations of the trachea, bronchi, and esophagus, just as the cystoscope and proctoscope are being employed. Practically every advancement in diagnosis and surgery has been the result of improved methods of visualization.

Diagnosticians and surgeons are coming to realize the importance of bronchoscopic and esophagoscopic examinations. Many obscure cases, in which the diagnosis is not determinable by the usual methods, are amenable to diagnosis by means of the bronchoscope and esophagoscope. Pathologic conditions are clearly revealed through these instruments. I recently saw a patient in consultation with Dr. Ulrich, in which he was not able to make a diagnosis. The bronchoscope showed a neoplasm of the right bronchus, one inch below the first bifurcation. A specimen, removed for examination, proved the growth to be a carcinoma that had broken through from some part of the mediastinum. In making bronchoscopic examinations of the trachea and bronchi in asthmatic patients, I have twice discovered aneurysms of the transverse arch of the aorta. This condition is recognized from its position, the distortion of the adjacent anatomy and the pulsations. The diagnoses were confirmed by the x-ray.

We are beginning to use the bronchoscope to assist you in your surgical work on goiter, frequently being able to determine the larger lobe as well as its position; i. e., whether it be subclavicular or larger on one side

than the other. Frequently we encounter a broken-down lymph-node in the bronchus, not an actual ulceration, but more like an area of granulation. These are amenable to treatment by lactic acid applications and are readily cured.

The point I wish to emphasize is that the bronchoscope and the esophagoscope are not dangerous instruments intended only for the extraction of foreign bodies. It has now become a valuable diagnostic procedure, and ought to be receiving more general recognition.

DR. J. G. PARSONS (Sioux Falls): Just a word along the line spoken of by Dr. Lewis. In this discussion I believe it is wise to emphasize the practical value of a paper of this kind to the men who are engaged in general practice. Obviously, there are very few of us who do bronchoscopy or anything of that kind, but, I think, one of the points of great value in a paper of this kind is visualization. I have become quite a crank on this subject. For a number of years I have laid stress on this thing before every medical society I have addressed. It is not feasible for many men to do bronchoscopy, but it is feasible and necessary for the general practitioner to see the things he cannot see with the means at his disposal ordinarily. I want to indict the medical profession as a whole for the shameful neglect of the use of head-mirrors, tongue-depressors, and nasal and aural specula. They do not use these things as they should. They overlook a whole lot of things they ought to see, and they fail to consider things they can see and do not have to guess at them. You are probably familiar with the wonderful essay of Dr. Oliver Wendell Holmes in regard to medical experiences and so on. I like to remember the things that Dr. Oliver Wendell Holmes regarded as the great things he learned in his student days under the famous Lewis. Summed up briefly, what he learned is as follows: Not to take authority when I can have facts; not to guess when I can know; not to think every man needs physic because he is sick. That is the experience of Holmes in the early part of the 19th century, and as a general lesson we ought to profit by it, not to guess when we can know; and the man who does not avail himself of the most significant thing in detecting things, namely, vision, is neglecting one of the most important things a physician has, and he is derelict in the duty he owes to his patient and to himself.

I want to make a plea for the practitioner to use the head-mirror, with which it is possible for him to see things that he does not see when he first begins to use it; but if he uses it in his daily practice it will be an invaluable aid to him. Many practitioners disregard these things, and do not know what they are going to see. It is their own fault because they do not use the instrument often enough.

DR. ROOST (closing): Specialists know the value of direct sight in diagnosis, and my main purpose in presenting this paper before this body is to bring home the fact to the general practitioner and surgeon and the internist the value of seeing morbid anatomy in the living. It is possible in every city to call in someone who can pass a bronchoscope or esophagoscope, and give you valuable aid with direct sight and lead you to a correct diagnosis, particularly in tumors of the esophagus.

I did not mention the use of the gastroscope in my



paper. The general practitioner should call in a man to pass a tube or esophagoscope or gastroscope, and get some aid from direct sight and make a practical and accurate diagnosis. Surgeons have not been doing this. They have been making diagnoses by passing a string with a pulley or tests in stomach troubles through the esophagus, or probing for stricture of the esophagus, diverticula, making blind stabs in there and producing lesions which may result fatally. There is no reason for this whatever. Any practitioner can pass the esophagoscope. It is an easy procedure, and you can see all the way down just as clearly and plainly as you can see in the mouth.

Direct visualization of the morbid anatomy in the living, as Dr. Lewis has said, is the thing we should avail ourselves of nowadays, particularly with reference to foreign bodies.

It may seem strange to you, but accidentally I went into a clinic a year ago and saw a surgeon make an opening into the trachea low down. He had gone in there blindly with a pair of forceps and grasped the metal body that had been inspired by the child. There was no reason for such a thing when a man can pass a bronchoscope and see what he is doing. This fine means of direct diagnosis has not been taken advantage of by the general practitioner, and the surgeon particularly.

## THE RELATION OF THE INTERNAL SECRETIONS TO NEUROLOGY AND PSYCHIATRY\*

By E. M. HAMMES, M. D.

SAINT PAUL, MINN.

The importance of the ductless glands is being recognized more and more in the etiology and sequential relationship of various nervous and mental phenomena. Our nervous systems, coincidental to the more severe stress and strain of our present mode of living, have become more highly evolved and less stable, and are more liable to suffer from even slight variations in the balance between the various hormones. There is a distinct interrelationship of these hormones, and undoubtedly several of the internal glandular organs are affected in every case, when even only one seems involved. There are indications of some relation between the activity of the thyroid and the sex glands. The enlargement of the thyroid during menstruation or pregnancy, and the disorders of menstruation associated with either hypo- or hyper-thyroidism, indicate an association between the activities of the thyroid and the ovaries. Pluriglandular involvement is the rule rather than the exception. Nevertheless, definite clinical syndromes are associated with diseases of certain glands.

*Thyroid*—The thyroid has received much attention, both by the neurologist and the psychiatrist. The results of thyroid insufficiency, namely, infantile cretinism and the myxedema of the adult, are typical and readily diagnosed. Cretins are usually classified in three groups: cretins, semicretins, and cretinoids. True cretins are usually idiots; and, although thyroid medication frequently improves the physical condition, it, unfortunately, has very little influence on the mental picture. The semicretins and cretinoids

are mentally deficient or simple-minded. There is a lack of initiative, and difficulty of acting with energy. Slowness of mental reaction is characteristic. These children are usually unmotional and placid, and have some speech-defects. The special senses are not involved except hearing and smell. Over fifty per cent of deaf-mutes show symptoms of cretinism. It is interesting to note that in Switzerland, where cretinism is very frequent, the percentage of deaf-mutes is greater than in any other civilized country. According to Bircher, this is not due to an involvement of the brain, but to a direct injury to the inner ear, and probably to a disturbance in the bony growth of that portion of the cranium.

In the myxedema of adults, mental torpor is frequent. The English Myxedema Commission found the apathy characteristic of this disease in 97 per cent of 109 cases examined. This may develop early, and in mild cases consists of mental retardation and slowness and monotony of speech. Sometimes there is excessive somnolence, especially in the daytime. Hallucinations and delusions are frequent. A true psychosis is not uncommon. The English Commission found it in eight per cent of their cases. No type is characteristic; the symptoms are usually subacute and may be those of a mania, although the melancholoid conditions predominate. That these mental symptoms are a part of the myxedema is shown by the fact that they are relieved by thyroid treatment, and reappear when the treatment is discontinued. Many and variable are the nervous manifestations. The nerve cell suffers derangement of nutrition. It becomes infiltrated,

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.



and also undergoes compression, due to the infiltration of the connective tissue surrounding it. Hence there is a partial inhibition of the motor and sensory impulses. A diminution in the excitability of the vegetative nervous system has been demonstrated experimentally by V. Cyon in thyroidless animals. The deep reflexes are present, but sluggish. These patients complain of neuralgias and anginiiform pains. Trigeminal neuralgia is common. Giddiness, noises in the ears, and somnolence are frequent complaints. Albumin may be found in the urine, and when it is associated with drowsiness or fits of coma, it may simulate the serous apoplexy of Bright's disease. Headache is frequent and severe. It may assume two forms: it sometimes resembles the early headache of coryza, and seems to originate in the frontal sinuses; or may begin in the occipital region and extend forward, simulating a migraine, but it differs from true migraine in that it is more intense in the morning and is often relieved after eating. This frequently is the type of migraine which may abruptly disappear at the menopause. Menstruation, or rather the inhibition of menstruation, appropriates a large portion of thyroid secretion, and the menopause restores to the general economy a large amount of this, which under other conditions would be employed in maintaining the plasticity of the blood. (Hertoghe.)

## CASE

Female, aged 48. Family history, negative; personal history, negative. Three children living and well. No miscarriages. Menstrual period, normal and regular until five years ago. Usual weight averaged 110 pounds; present weight, 254 pounds. Following the birth of the last child, fifteen years ago, she has been gradually increasing in weight, without any apparent cause. In ten years she gained 144 pounds. At present she complains of dyspnea, marked fatigue, swelling of the knees and arms, neuralgic pains in all extremities, especially the knee-joints. Mentally, she is quite sluggish; her speech is slow, and at times she is quite depressed. Physical and neurological examination, negative except for general adiposis. Her abdomen is very pendulous, and there are marked accumulations of fat around the hips. Her skin feels leathery. No thyroid gland palpable. Blood and urine, normal. She was placed on thyroid tablets, five grains three times a day, with beneficial results. In about six months her dyspnea had disappeared, the swelling had left her knees and arms, her abdomen was smaller, and the skin felt more normal. She had lost 60 pounds in weight, was bright mentally, and was relieved of the depression and free from her neuralgic pains.

Exophthalmic goiter, or Basedow's disease, due to hyper- or dys-function of the thyroid gland, is always associated with nervous phenomena, and

frequently complicated by a psychosis, which may range from a mild melancholia to an acute mania. Recent investigations have shown that in all probabilities a lesion and a functional insufficiency of the parathyroids are found in cases of hyperactivity of the thyroid. An important and constant symptom is the fine tremor; it occurs early, and is usually bilateral and in the upper extremities. It rarely may manifest itself in the lower extremities or even be only unilateral. Choreiform movements have been reported. An undue restlessness and irritability may be the only disturbance in the psychic sphere. Frequently, a picture of a maniac-depressive insanity develops. Rarely, it manifests itself as a dementia precox. Sattler believes that there is no typical Basedow's psychosis, but that in predisposed individuals the additional toxins of hyperthyroidism precipitate the mental state. Occasionally, these patients pass through a mild melancholia, and suddenly develop an acute maniacal state, terminating in death from exhaustion. We recently had two such cases.

## CASE

CASE A.—Patient of Dr. Riggs; female, aged 42. Family and personal history, negative. She developed symptoms of hyperthyroidism, manifesting themselves with tachycardia, exophthalmus, tremor, and attacks of diarrhea. At the time of our examination, about six months after the onset, she presented the picture of a melancholia, associated with various delusions and marked insomnia. She was afraid that her family would be killed, and that she would die, and had similar other fears. These delusions were always more severe at night. Aside from an enlarged thyroid, the physical and neurological examination was negative. The pulse-rate was 115; the hemoglobin, 68 per cent; leucocytes, 14,900; red blood count, 4,830,000; blood-pressure 124 mm. Hg; urine, normal.

This depressed state continued for about seven weeks, when one evening she suddenly became noisy and exceedingly violent, and had to be put in restraint. This acute excitement continued for two days, when she became comatose and died.

We have a case under our care at present which began with typical neurasthenic symptoms and loss of weight. About three months later, she developed symptoms of exophthalmic goiter, associated with periods of acute mental excitement. Following the surgical removal of the goiter, she became quite depressed. At present (about five months after the operation) all symptoms of hyperthyroidism, except the exophthalmus, have disappeared, but her mental picture is still that of an involutional melancholia. She is forty-eight years old, and it seems possible that the entire clinical picture might be due to

changes in the ovaries and thyroid, coincidental to the menopause.

*Parathyroids.*—The observations of MacCullum seem to show that the distribution of the calcium in the body is under the control of the parathyroid secretions. A deficiency of this secretion causes a disturbance in the calcium metabolism, resulting in an increase of nervous excitability. This is clinically manifested by tetany, with its various muscle spasms, trophic disturbances, and other phenomena. It has been suggested that paralysis agitans is due to parathyroid insufficiency, but neither pathologic findings nor medication of parathyroid extract has in any way confirmed this theory.

*The Sex Glands.*—The sex glands are divided into the generative apparatus and the interstitial glands. The Leydig's interstitial cells are epithelioid cell masses, imbedded in the sexual glands of the male, and filled with acidophilic granules. In the female these cells are not so constant, but it is difficult to believe that so important an organ is absent in women. The distinction between these glands and the generative glands is based on clinical observations and experimental facts. The interstitial glands exercise an important influence on the development of the generative glands, on the accessory genital apparatus, and on the so-called sexual characters (Falta). It is the disturbance in these interstitial glands that probably causes so many and varied nervous phenomena. In the early eunuch the excitability of the vegetative nerves is somewhat reduced. The development of the intelligence is usually normal, but these patients lack the courage, the passions, and the aspirations of a normal man. In the late castrates, in the male, very little is reported in the literature. There is usually a regressive alteration of the genital apparatus, also of the secondary sexual characters, and a distribution of fat similar to that in eunuchs. No reference is made to any mental or nervous phenomena. It might be of interest to report a case, where on account of trauma, part of the genital apparatus had been removed.

#### CASE

CASE C.—Male, aged 46; professional man; single. Family history, negative. Personal history, negative except for a nervous breakdown at the age of 12, lasting over one year. Venereal and alcoholic history, negative.

In November, 1913, the patient sustained a severe injury to the external genitals, necessitating removal of one whole testicle, a part of the other one, and a portion of the penis. The operation was performed by Dr. Henry J. O'Brien. The patient remained in the hospital for several months. About the middle of January,

1914, he became very depressed, and had marked insomnia.

He first came under our care March 24, 1914, presenting the picture of a marked melancholia. I again saw him in August, 1914, and he told me that during July he noticed considerable intermittent swelling, and at times pain, in his right hand and forearm. It seemed to have the characteristics of an angioneurotic edema. About this time (ten months after the injury) his breasts began to enlarge uniformly, especially the left one, which was very tender and painful. His depression was better, and he averaged about six hours' sleep each night. His blood-count and urine were normal and the blood-pressure was 130 mm. Hg. This condition remained for about eleven months. Since his accident (one and one-half years ago) he has had no sexual desires or emissions. On June 23, 1915, we gave him testicular extract, grains '5, three times a day, which he took regularly for three weeks, when it caused nausea, and he had to discontinue it. After taking the testicular substance for ten days, he had several nocturnal emissions, his breasts have become smaller and less tender, and the pains and swelling in his right hand and forearm are decidedly better. He also states that his head feels clearer, his mind is keener, and it seems as if a load had been lifted from his brain.

At the climacteric in the female the interstitial glands show regressive changes; they are, however, retained in part. During the transition period numerous nervous disturbances occur, which point to changing conditions of excitation in the vegetative nerves. Climacteric psychoses are frequent, and, although the melancholias predominate, there is no characteristic mental picture.

*Suprarenals.*—Hypoplasia of the suprarenals frequently occurs in certain disturbances in the embryological development of the brain. Czerny reported five cases of congenital hydrocephalus associated with complete absence of the medullary substance of the suprarenals, the cortex being present. Zander found also a reduction in the size of the suprarenals, in certain cases of embryonic defect of the anterior portions of the cerebral hemispheres. Strehl, Weiss, and others attempted to show that the suprarenals help to neutralize certain toxic products of metabolism, and that during insufficiency of this gland there is an increased toxicity of the viscera and urine, attended by feelings of fatigue and lassitude. Undoubtedly, arteriosclerosis and arterial hypertension, due to variations in the internal secretion of adrenalin, give rise to manifold nervous and mental disorders.

The relationship between the sympathetic nervous system and the suprarenals, is a close one, and it has been suggested that disturbances in this field may give rise to occupation spasms, choreas, and epilepsy. J. G. Philips, in the *Brit-*



*ish Medical Journal*, December 21, 1912, reports a case clinically simulating paresis, both physically and mentally. Later, symptoms of Addison's disease also developed. The post-mortem examination showed no evidence in the brain of general paresis, but a hemorrhagic and sclerotic condition of both adrenals.

*The hypophysis.*—The somatic symptoms of acromegaly are frequently accompanied by the usual manifestations of intracranial pressure, such as headache, morbid somnolence and progressive apathy. Disturbances of vision and paralysis of the eye muscles may be present, and the fields of vision often show bitemporal hemianopsia. General epileptic attacks are not infrequent. The sexual functions are usually diminished. In the later stages a true psychosis may occur. Thomas reported a case associated with dementia precox; Brunet and Dercum reported one with melancholia. There is no typical psychosis, and, undoubtedly, the hypophysis tumor is only an exciting factor. Severe pains frequently occur during two stages in the development of acromegaly. In the early part, while the skeletal system is enlarging and in the later stage during the terminal cachexia. The pains during the developmental period are usually symmetrical in all four extremities, and are rheumatic in character. During the terminal cachexia they are of a neuralgic nature, most severe in the nerve trunks, usually the sciatic or trigeminal. Similar nervous and psychic phenomena may occur in dystrophia adiposa genitalis, or Fröhlich's disease. No doubt there is a distinct relation between the ductless glands and many diseases of the central nervous system. Future investigations may determine that the etiologic factor in dementia precox and other developmental morbid mental states and in many of the obscure neuroses, is, in part at least, a disturbance in the balance of the ductless glandular secretions.

#### DISCUSSION

DR. J. F. CORBETT (Minneapolis). The essayist has emphasized the interrelationship that exists between the organs of internal secretion founded upon both positive information and deduction. This is typified in the thyroid and the glands of the generative system. Many observations indicate that the thyroid affects the secretions of the ovary, and, conversely, the ovary influences the thyroid. Where there seems to be some association of function in different organs usually some anatomical foundation can be established. This is true in regard to the thyroid and the ovary, for, in certain species, there is found an anatomical welding of these structures.

In the suprarenal we find that the secretion of the medullary portion affects the musculature of blood-vessels, that is, epinephrin is pre-eminently concerned in causing vasoconstriction. This is again emphasized

on an anatomical basis, for, in some species of fishes, it has been found that there is no suprarenal, but that the adrenal cells secreting epinephrin are in intimate connection with the sympathetic nervous cells throughout the course of the vessels. The function of epinephrin is to maintain the tone of the unstriated muscle of blood-vessels at such a tension that they can be acted upon by the sympathetic nervous system. This is according to the teachings of Elliott; and for this reason all of the blood-vessels of the body and all of the organs of the body are more or less affected by epinephrin, with the possible exception of the brain. We have reason for thinking that epinephrin does not directly affect the blood-vessels of the brain, because these vessels do not contain the sympathetic fibers that are necessary for adrenalin to act. On the other hand, fear and rage, pain and mental excitement, may cause a great deal of epinephrin to be poured out from the suprarenal glands, according to the work that has been done by Cannon, and, as a result of this explosive output, we may even have complete exhaustion of the suprarenal glands. While the blood-vessels of the brain are not directly affected by epinephrin, the brain may be flooded with an additional supply of blood when epinephrin is administered, because the general vasoconstriction of the vessels of the body mechanically forces more blood into the brain. In the same way it seems reasonable to assume that epinephrin or the secretion of the suprarenal must affect the blood-supply of all of the other internal organs of secretion. This may explain the supposed antagonism between the islands of Langerhans in the pancreas and the suprarenal.

Beside the medullary portion there is another part of the suprarenal gland that does seem to directly influence the brain. According to Glinn the cortex of the suprarenal affects the growth and development of the central nervous system. The cortex of the suprarenal is not pre-eminently concerned in the secretion of epinephrin, but is composed largely of lipid substance. Acephalic monsters, as a rule, have no suprarenal cortex.

In regard to the interrelationship that exists between the glands of internal secretion, we have a beautiful example in Cushing's experiment, where he removes the greater part of the hypophysis in a young animal. As this animal grows up we find there are marked disturbances as indicated by this syndrome—adiposity, asthenia, increased carbohydrate tolerance, skeletal defects, and reversible sexual changes. This might lead one to believe that all of these changes were due to deficient hypophysis, but in all of these animals we find, as a result of the partial hypophysectomy, deficiency in all of the glands of internal secretion. Clinically, these observations also hold good, so that with a certain syndrome we are often at a loss to know what particular gland was primarily lacking.

DR. J. C. BOEHM (St. Cloud, Minn.): I think the author stated that he gave five grains of thyroid, three times a day. I have never had a patient who could take that much in twenty-four hours, and I would like to know what form of thyroid he uses,—whether it is the desiccated form or not?

DR. HAMMES (closing): We use Armour's desiccated thyroid, and we had the patient in the hospital under observation, so that we had no trouble from such doses.



## GASTRIC DISEASES: DIAGNOSIS\*

By JOHN W. SHUMAN, M. D.

SIOUX CITY, IOWA

Your secretary emphatically requested me "to talk upon a practical subject, one with which the general practitioner is constantly confronted, and to drive in the point of thoroughness in examination of the patient."

I will comply with his request by discussing gastric diseases. The two diseases—and there are only two—which attack the stomach proper, are ulcer and cancer. The diseases, however, which cause gastric disturbance are many. Acute or chronic disease of the gall-bladder, pancreas, appendix, kidneys, lungs, and heart, commonly gives rise to gastric irritability; but, if a full and complete history of the patient's previous diseases and present illness is taken, a careful, painstaking physical examination and observation performed, and one or two simple tests made, the diagnosis is generally greatly simplified. In the order of the occurrence of stomach disease we will first consider the diagnosis of simple ulceration.

## ULCER

With the symptoms "hunger-pain," sour eructations (hyperacidity), hypersecretion, and "point" tenderness, ulceration must be strongly suspected. If occult blood is found and confirmed, the previous diet being meat-free, the suspicion is much stronger. If the bleeding-point is located the diagnosis is made. Locating the bleeding-point is quite necessary in every instance, and is not a difficult task. It is easy for the patient to swallow a No. 14 braided-silk cord and lead-ball, such as I have here. (See Fig 1.) This technic will not only show the relative location but also the approximate size of the raw surface.

The material used consists of a No. 14 braided-silk cord and an ordinary lead bullet with a hole drilled through it to allow one end of the cord to be knotted fast. The length of the cord is measured externally from the angle of the mouth to approximately eight inches below the pylorus. The ball and one end of the cord is swallowed (it is well for the physician to supervise this, and also its removal), and the upper or free end is made fast about the neck of the patient. The lead-ball should pass out of the pylorus, and come to rest at or below the ampulla of Vater.

Often the cord is left in place over night, especially when severe pylorospasm is present. The patient experiences no discomfort, but generally sleeps through the night. It is obvious that the cord must be left in the stomach a sufficient length of time to permit the ball to pass out of the pylorus.

When the cord is removed, the following points are observed.

First, from the bullet-end, whether or not the cord is bile-stained. If the lower four or five inches are stained a yellowish-green (bile) the lead-ball with the cord attached did pass out of the pylorus, and was in the duodenum.

Second, whether or not the cord has a blood-stain upon it. If a blood-stain is slight it can be stained out more clearly with any occult-blood test. This simple test will not only give a positive finding of the raw surface, but will also give the relative location and size of the ulcer; and it will even help to conserve time to the surgeon and patient at operation, if performed, due to the fact that the operator will know where to pick up the lesion without a hesitating exploration. Then again there is less likelihood of overlooking an ulcer at operation, for, during many operations for gastro-duodenal ulcer, the operator fails to find an ulcer because he is not thoroughly convinced before operation that an ulcer was really present.

Since reporting this technic, two and one-half years ago, in the *St. Paul Medical Journal*, of April 11, 1914 ("Diagnosis and Treatment of Gastric Ulcer"), I have used it in over seventy-five positive cases, in many cases more than once, and have yet to doubt its accuracy. In one instance the cord showed two distinct and separate blood-stains. (See Fig. 1). I doubted that the patient had two ulcers. Medical treatment failed in this instance. At operation the surgeon stated there was "one ulcer located just outside of the pylorus." Two weeks later the patient died. Autopsy revealed two ulcers: a dime-sized ulcer noted just outside the pyloric ring, and a larger one situated an inch and a half below.

The second method of examining for the source of bleeding is not any more complicated, and is quite definite. It is useful technic for differential diagnostic work. I mean the duodenal tube, of which there are several types. I

\*Delivered by invitation before the Lake Preston Medical Society, June 14, 1916, at Huron, S. D.

reported my limited experience with the duodenal tube in *THE JOURNAL-LANCET* of March 15, 1916, ("Chronic Pancreatitis"). In one case of severe pylorospasm the tube was in the stomach nine hours before it passed into the duod-

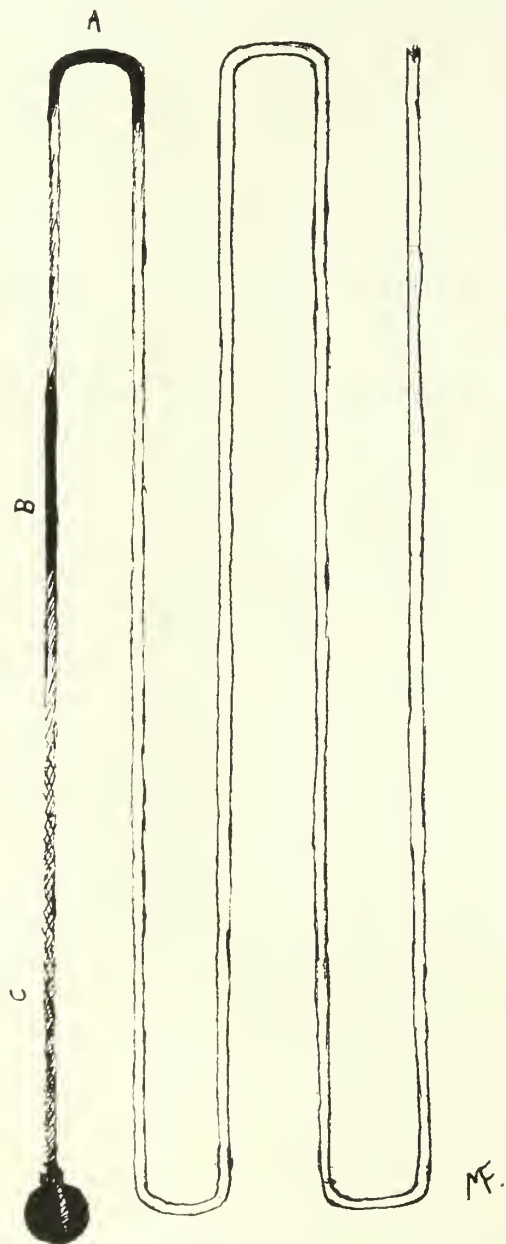


Fig. 1. Actual size of No. 14 braided-silk cord and lead ball. A and B show blood-stained areas of case mentioned in text. C is bile stain.

enum. In this case, and in several other positive ulcer cases, bright-red blood was obtained as soon as the "bulb" passed out of the stomach, which substantiated the clinical diagnosis of extrapyloric ulcer.

Röntgenoscopy and the study of a series of plates are indispensable. The signs of value in Röntgen-ray diagnosis of gastroduodenal ulceration are, first, a diverticulum; second, a permanent incisura opposite the site of the ulcer; third, hyperperistalsis (duodenal ulcer); fourth, a large six-hour residue (pylorospasm); and, fifth, a deformed cap or duodenum, which shows constantly in a series of plates (duodenal ulcer). Numbers three and four are highly suggestive, and if, in addition, we find number two, we can be certain of the presence of ulcer. Number one is practically diagnostic of penetrating ulcer, and, if number five is present, I feel safe in diagnosing duodenal ulceration from the röntgenoscopic examination. The Röntgen ray is exceedingly necessary when we wish to diagnose simple or malignant gastric ulceration, and the doctor is unfair who will not give his patient the benefit of all diagnostic technic. The more thorough the examination the less likely we are to make mistakes.

We will now consider malignant ulceration.

#### GASTRIC CANCER

If a patient of forty or more complains of gastric disturbance, malignant ulceration should be considered. If careful examination reveals stomach disease, cancer must be suspected. It is only the early suspicioning of gastric cancer and, oftentimes, an exploratory operation and a microscopic examination that will make a correct diagnosis. If we believe that every gastric cancer begins upon an ulcer basis,—and it is logical to think so,—we must treat and teach our ulcer cases very carefully indeed. Hypoacidity and the presence of lactic acid are highly suggestive of malignant stomach disease. Emaciation secondary to the lack of food absorption is also strongly suggestive of cancer, but when this occurs the disease is generally far advanced.

The Röntgen ray is recognized as one of the most helpful means of diagnosing gastric cancer. Many of our best clinicians say it is impossible to diagnose early gastric cancer; however, George and Leonard write, "With the Röntgen ray we have one means of early detecting gastric carcinoma. The lesions are small and situated near the pylorus, and show small filling defects, which are annular in character." They state that "with these signs present resection is advisable. The negative value of a plate is just as valuable as its positive value. A normal stomach on the Rönt-

gen plate absolutely rules out any growth beyond the microscopic stage."

The "ulcer case" which does not readily amend to medical treatment demands surgical intervention. An indurated area concerning which the surgeon is in doubt, demands a microscopic examination. It is in the borderline case, if any, that a cure can be secured. We do not know just when metastasis occurs in cancer, but it is safe to think that it takes place very early; therefore it is up to physician and patient to act with quick precision.

There is no other condition in which the conscientious doctor will make more mistakes than in diagnosing intra-abdominal pathology. This is especially true concerning disease of the stomach. He will have many abdomens opened that prove his diagnosis incorrect. If he is doing for the patient what he would have done for himself he is doing no injustice. But if all means of diagnosing are exhausted in an attempt to define the lesion, fewer exploratory operations will be the result, nor needless and even pernicious treatment persisted in. It was not my intention to burden you with case-reports, but here is one which has a direct bearing upon the state-

ment I have just made regarding unnecessary treatment.

A postman, aged 44, examined May 12, 1916, complained of "stomach trouble." His family history was negative. Previous history was unimportant, except one attack of gonorrhea, and lues denied.

Present illness: Six weeks previously he had suffered severe attacks of pain in "the pit" of his stomach. He consulted his physician, who diagnosed his trouble as pylorospasm due to an acute ulcer, and had treated for ulcer up to the present time. He suffered one to two attacks of severe general abdominal pain a day which required from one-fourth to one-half grain of morphine sulphate, hypodermically, to relieve.

Physical examination: Pupils did not react to light; anesthesia of the ulnar nerves, and diminished knee-jerks. This led me to suspect tabes dorsalis with gastric crises the complaint. A positive Wassermann substantiated this diagnosis.

Quite a number of tabetic cases have had their abdomens opened needlessly or improper treatment administered. It does pay to go over our patients carefully. It is necessary to examine thoroughly every patient who consults us. It does take time and work to perform such an examination. If a man is unwilling to take the time and do the work, he must expect a higher percentage of mistaken diagnoses in his practice than the man who does all in his power to perfect his diagnostic technic.

## WALLINGFORD INVESTMENTS

BY JAMES J. LAMBRECHT

President of the Phoenix Mortgage Loan Company

MINNEAPOLIS

*SUBSCRIBE for shares in company now forming. We have a safe legitimate proposition to offer whereby an investment of \$100 will in all probability give you an income of \$1,000 per year. For particulars address X18 Tribune.*

This advertisement was recently clipped from the financial want columns of a great daily paper. It is a fair sample of many. Money by the hat-full and all for a measly investment of \$100. Wallingfords do not only live in fiction—every community has one or more in real life, and the old saying still holds true that "there is a sucker born every minute."

Such magazines as *The Saturday Evening Post*, *Collier's*, *Munsey's*, and the *World's Work* have for years waged a campaign against get-rich-quick investments; legislatures have sat up nights trying to enact "blue-sky" laws that would

stick, and the postal authorities have worked overtime issuing fraud orders and making prosecutions, and yet the schemes, stocks and industrial promotion ventures come,—a dozen new ones a day—just fresh off from the press for the consumption of an all-absorbing and credulous public.

It has been well said that "you cannot beat a man at his own game." Yet a large share of our business and professional men and wage-earners are trying to do that very thing. If you were to search the safety deposit box, trunk or mattress of many, you would find one or more certificates attesting to the fact that at some time or other they either "fell" or were "landed" for some proposition that was outside of their own sphere of activity. "Blue-sky" legislation may lean towards paternalism in government on the theory that it preaches the fact that an unsophisticated public had not ought to be trusted



with the investment of its own money, but that is just exactly what the promoter says, "a sucker should not be trusted with money, anyway," and forthwith proceeds to separate him from the trust.

It is a great game and to educate every person in every line of endeavor, every scheme, every hook 'em and bunk 'em proposition that comes along would require a divine mind; furthermore, this would be manifestly impossible, because more schemes will come after than have gone on before. However, some of the simplest rules can be followed by every investor and the "acid test" can be given before he places his confidence, signature and money into something outside of his own business or a mortgage. The rules:

Rule One: Is the stock or bond offered listed in Moody's or any other standard manual of securities? Is it listed on any stock exchange?

Rule Two: Is the concern under supervision and if the parent state of the corporation has no law on the subject, does the company qualify in some other state which has an investment commission?

Rule Three: (The acid test.) If the proposition is as good as Mr. Wallingford pictures it, how did it ever happen to get by the big men with money and investors of means generally, only to be offered to smaller fry who know no game but their own? This means YOU if you have been an "investor" and have not followed rules one and two, because men of means do, and they hold about the only securities which pay dividends while you hold the promoter's bag.

The success of the big advertised industrials, of sound insurance companies, of proven mines or great patents has been the cue of the promoter. It inspires him to create a like oppor-

tunity,—a vehicle for the sale of the stock—and we are not saying that the motive is not always sincere or honest. But it is usually misguided, illy-thought out and invariably leads to great loss. In every community you will find an imitator of some well-known industrial whose stock has soared beyond reach; every city and state has produced a myriad of life and fire insurance companies that were going to pay the fabulous profits shown to have been earned when the Armstrong commission investigated the business; every community has been given an opportunity to buy stock in cement mills, electric railways, mail order houses, automobile factories, patent remedy companies, oil and mining propositions. And every community has been beautifully stung. The government figures show that the aggregate loss runs into hundreds of millions each year and still the parade goes on and on and on.

Again, the acid test. Read this: There are in the United States 250,000 corporations. Under the internal revenue or income tax law only 60,000 show a net earning of \$5,000 or over. 190,000 corporations show no net earning at all. Now take the number of large banks, insurance, trust, mortgage loan and financial companies that you know of; then take the directory showing similar concerns in other sections that you don't know of; add to these the great railway and industrial corporations everywhere and you will soon make up the sum total of the 60,000 corporations which are earning profits.

Let these figures sink in. Comparisons are odious, but this one preaches 190,000 sermons on which investments to cut out. Put your money into your own business, in a home or a mortgage. Better sleep on six per cent than lie awake on twenty.

# THE JOURNAL-LANCET

The Journal of the Minnesota State Medical Association  
and Official Organ of the  
North Dakota and South Dakota State Medical Associations

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AUGUST 1, 1916

## "GIVE THE PROFESSION AND THE PUBLIC THE FACTS"

Under the above caption, with its implied sinister meaning, the *Journal of the American Medical Association* (issue of July 15) made a vicious and unwarranted attack upon THE JOURNAL-LANCET, such attack being based upon an editorial in our issue of July 1, entitled "Damages, One Cent"; but "the facts" by which the readers of this attack could judge of the justice of its denunciatory language, were not given.

As our readers know, the so-called Wine of Cardui libel suit against the American Medical Association resulted in a verdict against the Association with an award of one cent damages.

Two suits were originally brought, one by the Chattanooga Medicine Company, and the other by its manager, Mr. John A. Patten; and these suits were consolidated, and tried as one.

In our comment on the result of the suit we made the following statements:

The verdict is virtually a victory for the Wine of Cardui Company, and means a very decided victory for the patent medicine association.

The victory will be heralded throughout the country, and the patent medicine men will all take advantage of this unfortunate situation.

The question arises as to whether it pays to attack a patent medicine.

We further said, by way of explanation of the dangers in attacks upon wrong, "the present effort [resulting in this libel suit] to suppress vice is another instance of what is at least temporarily evident."

Out of the language quoted, as out of our entire editorial, stand prominent evidences of our opinion and our attitude in this matter.

1. The verdict is *virtually* a victory for the Wine of Cardui Company.

2. The patent medicine men will *take advantage* of this *unfortunate* situation.

3. The present effort is one to suppress *vice*.

4. "The American Medical Association will probably not be discouraged" and "will probably go on in spite of a temporary defeat."

Upon these statements the *Jour. of the A. M. A.* bases its editorial, which ranks THE JOURNAL-LANCET among the enemies of the Association, whereas the editor of THE JOURNAL-LANCET, who is a Fellow of the Association and has been signally honored by it, is in hearty accord with the Association's work in the main; and not one word of criticism of the Association has ever appeared in the columns of THE JOURNAL-LANCET.

The *Jour. of the A. M. A.* was apparently greatly hurt by our characterization of the verdict, which it calls "a moral victory for the Association." Upon a fuller examination of the case as presented in the columns of the *Jour. of the A. M. A.* we are inclined to modify our characterization of the verdict.

Now, a verdict giving nominal damages is to be interpreted in the light of the evidence, the law, and the court's instructions to the jury; and it is always informing to contrast such a verdict with what it might reasonably have been under the conditions above named. Let us consider this verdict in such light.

While we have not seen the court's instructions to the jury, colloquies between the court and the attorneys clearly foreshadow that part of the instructions essential to an interpretation of the verdict; and we think all members of the A. M. A. will find food for serious thought in the facts upon which our interpretation is based.

We are glad to be able to say that the evidence in this case showed *overwhelmingly* that the two drugs in Wine of Cardui have so little, if any, therapeutic value, and the amount of alcohol in it is so great, as to make its characterization as "booze" wholly justifiable. The evi-

dence also showed that the methods adopted in the exploitation of the nostrum were reprehensible in the extreme and were, as we commonly use the term, criminal.

Under such a state of facts a verdict for the medicine company, even with nominal damages, can be justly called a very great victory, particularly in view of the fact that very few persons, professional or lay, will read the entire evidence, and thus be informed, and so prevent a misconstruction of the verdict.

But this, very unfortunately, is not all of the case; for the editor of the *Jour. of the A. M. A.* was not satisfied to confine his charges to the lines suggested above, however damaging and, we may say, damning such charges were, but he saw fit to resort to personalities which the merest tyro in an editorial chair would have known were libelous, and the truth of some of which anyone, upon a moment's consideration, would have known was not humanly capable of proof. One such statement was that "one of the partners of this business used the tainted money to bribe the church for a position."

This charge, doubtless, referred to the senior Patten, who held one or more positions on boards of the Methodist Episcopal Church, to which positions one is elected by either the Board of Bishops or a General Conference of the Church, the latter body consisting of several hundred members. As this tainted money purchase involved both the bribe-giver and the bribe-takers, we assert that it is not humanly possible of proof, if indeed it is humanly credible; and we further assert that such a statement, involving honored officials or representatives of the great Methodist Episcopal Church, and made in the Association's own scientific journal, brings great discredit upon the American Medical Association, and the Association should have hastened "to disavow it and suitably punish the offender."

The senior Patten's suit, based upon this and other charges, set his damages at one hundred thousand dollars. The merging of the two suits combined the personal and the business elements in the case presented to the jury. As Mr. Patten died during the trial, the personal and sympathetic element was eliminated, as well as the reason for a verdict in his favor.

As brought out in a colloquy between the court and one of the attorneys for the defendant, in a suit of this kind the truth of every libelous

statement must be proved. As to the truth of one or more of the libelous statements, if we are not greatly mistaken, no evidence whatever was offered by the defendant, the American Medical Association; and therefore a verdict against it was inevitable.

In view of the amount that the jury probably would have given the senior Patten had he not died, we do not hesitate to say that the Association gained a very great victory in a one cent verdict; and the well-known tendency of jurors to punish libelers confirms this view.

We dwell thus at length upon the details of this case to show the members of the American Medical Association how recklessly a very large sum of the Association's money, probably over one hundred thousand dollars, which might have been twice as much, was thrown away; how a great opportunity for doing good and suppressing a great evil was lost; how the Association has been humiliated by its unwarranted attack upon the representatives of a great body of Christian men and women (the Methodist Church); and how great is the danger of a repetition of the offense.

This reckless vituperative habit of the editor of the *Jour. of the A. M. A.* seems to know no bounds, for he does not spare even the medical profession, "no small part" of which, he says, "is under the blight of the 'patent medicine' business," and "the 'patent medicine' interests were able to enlist—at a price—the help of men who were, ostensibly, so technically trained as to be above such temptation." Such an indictment, if made even in a lay journal, would pain the profession, but what can be its effect made editorially in the leading medical journal of the country?

In the light of such facts, our readers will understand how groundless was the attack upon THE JOURNAL-LANCET, and will readily perceive that another motive may have been behind this attack.

We shall reserve for another time the discussion of the so-called ethical standards for advertisements which the *Jour. of the A. M. A.* would force upon all other medical journals, and abuse all that do not adopt its standard.

THE JOURNAL-LANCET has a record of which it is not ashamed, and it feels abundantly able to defend it.



## INFANTILE PARALYSIS IN THE NORTHWEST

There are probably very few physicians in the Northwest who are not thoroughly posted on the subject of infantile paralysis, who, in short, do not have practically all of the scant knowledge of the subject in the possession of the profession. But we fear there are some, probably all too many, who are not alive to the importance of reporting by telegraph or telephone all suspected cases. We are loath to say, but it is an unfortunate fact, that not one of the boards of health of the Northwestern States, has sufficient funds at its disposal properly and effectively to deal with any disease, control of which is obtained only by the liberal expenditure of money and effort.

Minnesota is sadly lacking in funds for such purpose, but with the hearty and continued co-operation of medical men, especially in the matter of instant reporting of cases, the ways to deal with all conditions will be obtained by the State Board of Health.

Between January 1 and July 25 there have been only twelve deaths from infantile paralysis in Minnesota, and none since June 1, when a death occurred in Martin County.

The number of recovered and existing cases now in Minnesota is fifty-seven. This, of course, is in nowise alarming, but it would be highly discreditable to our profession to let a single one of these cases become the medium of the further spread of this disease, which is so terrifying to the laity.

## BOOK NOTICES

**GYNECOLOGY.** By William P. Graves, M. D., F. A. C. S., Professor of Gynecology at Harvard Medical School. Octavo, 770 pages with 424 original illustrations, 66 in colors. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, \$7.00 net; half morocco, \$8.50 net.

This book is designed both as a text-book and as a general reference work on gynecology. To meet these requirements it is divided into three parts.

Part I deals with the physiology of the pelvic organs and with the relationship of gynecology to the general organism. The latter half of this part is extremely suggestive and interesting, important alike to the undergraduate student, general practitioner, and the specialist.

Part II takes up the gynecologic diseases, describes them succinctly and clearly, and groups them, as all should be taught to group them in making a diagnosis by exclusion, into inflammations, new growths, and defects of development and injuries. Ectopic pregnancy, disturbances of menstruation, infantilism, and sterility

are treated in a separate chapter on special gynecologic diseases. The chapter on defects of development is excellent. The introduction of comparative anatomy is a great aid to the memory, as well as of great interest to those interested in the larger field of biology.

Part III treats of operative technic. This part is sufficiently complete and well illustrated. It is to be hoped that the time will come when types of operations will be given an anatomical nomenclature and not be designated primarily by the name of the originator or group of originators. The name of an operation should suggest anatomy and not a page from a dictionary of proper names.

The book is a valuable acquisition to the literature of gynecology. —LA VAKE.

**INTERNATIONAL CLINICS.** Series 26, vol. 2. J. B. Lippincott & Co., Philadelphia. 1916. Price, \$2.00.

This volume makes its appearance with the usual attractions and interest belonging to that standard publication, namely, good binding, good, heavy paper, clear type, valuable contributions, and a long list of illustrations, including a few colored plates.

Its contents are included under the following heads: Treatment, Medicine, Psychiatry, Obstetrics, Public Health, and Surgery.

For regular readers of the International Clinics it is useless to make special mention of any contribution or to note their authors; "natural selection" settles that matter.

But the paper by Professor E. J. G. Beardsley, of Philadelphia, on "The Indications for Venisection," should be read by all physicians. It indicates a return, in a rational way, to a procedure of very great value as a relief from suffering in many instances. Dr. Beardsley speaks of venisection as "symptomatic relief." He does not attribute to it curative properties, and still this may be an open question. When it was the fashion to bleed under all conditions, say up towards the middle of last century, there is no doubt much mischief was done by indiscriminate bleeding; but, without doubt, much suffering and distress failed of mitigation by the almost total abandonment of the mode of treatment.

It is to be hoped that soon venisection will find its legitimate and proper place in medicine.

It would be well for every physician to consult the International Clinics somewhat as he does the menu card at the cafe, selecting what may appeal most to his professional appetite. —STUART.

## NEWS ITEMS

Dr. E. R. Jellison has moved from Cokato to Plato.

Dr. Merton Field has opened a hospital at St. Peter.

Dr. Thomas Meyers, of Bemidji, has located in St. Paul.

Ground has been broken for the erection of the Spring Grove Hospital.

Dr. W. A. Brand, of Redwood Falls, is taking an advanced course in surgery in Chicago.

Dr. H. C. Aldrich, of Minneapolis, has returned from an extended trip in the East.

Dr. E. D. Simpson, formerly of St. Paul and Rochester, has opened offices in Watertown, S. D.

Dr. A. S. Backus has resumed his practice in Wales, N. D., after taking a postgraduate course in Chicago.

Dr. R. M. Thurlow and Dr. Pearl S. Waters, both of the Fergus Falls State Hospital, were married at Fargo, N. D., July 15.

Dr. Elizabeth A. Neff, formerly of Emerson, N. D., but of late of Halliday, N. D., died of heart failure at a Fourth of July celebration which she was witnessing.

Announcement is made that St. Paul is to have a million dollar hospital for the poor, and it is to be on Summit Ave. It will be known as "The Charles T. Miller Hospital."

Dr. J. H. Kirkham has completed a course in a Milwaukee hospital and has returned to Langdon, N. D. He and Dr. John Towey of that place have formed a partnership.

Seventeen physicians passed the examination for license to practice in North Dakota at the July examination. Ten were North Dakota men, and seven were from outside the state.

The Upper Mississippi Valley Medical Society had an annual outing last month. About forty members with their families spent a day at Rainy Lake, ending with a fish banquet in the evening.

Fourteen of the students enrolled at the Fargo College Summer School are medical students of the Medical School of the University of Minnesota who are using the summer months to brush up in physics.

The August number of *American Medicine* is a "Special Acidosis Number." The subject is admirably treated by a number of our best Eastern men, and every reader will find some phase of it of special value.

Dr. Arthur W. Hoaglund, of Minneapolis, was one of the eight physicians who passed the examination for appointment as assistant surgeon in the U. S. Medical Reserve Corps. The examination was held in various cities of the country.

Dr. G. J. McIntosh, of Devils Lake, has been appointed to the North Dakota State Board of Medical Examiners to succeed Dr. Francis Peake, of Jamestown. Dr. J. G. Dillon, of Fargo, succeeds Dr. A. W. Skelsey, of Fargo.

Dr. G. M. Williamson, of Grand Forks, was reappointed.

Twin City members of the Physicians' Exchange are adding these words, "If no answer, call Physicians' Exchange," to their telephone addresses. Notices should be given the telephone companies at once to get this line into their new books.

The Minnesota Public Health Association has decided to employ a field secretary, whose work will be to co-ordinate the various public health interests and to co-operate in and direct any public health work where such help is needed and asked for.

Dr. Asa S. Wilcox, of Minneapolis, died last month at the age of 57. Dr. Wilcox was a highly respected physician and citizen. He had practiced in Minneapolis since 1885. Dr. Cyrus Northrop preached the funeral sermon, and paid high tribute to Dr. Wilcox.

Physicians of Minneapolis, St. Paul, and Duluth sent a petition to the Minnesota State Board of Health at its last meeting asking for a regulation requiring physicians to take steps to prevent blindness at birth. The petition will be passed upon at the October meeting.

The license of Dr. Heber W. Coulter to practice medicine in North Dakota has been revoked by the examining board of the State. A license was issued to him in 1913, but it appears that there were irregularities in obtaining it; and as Dr. Coulter did not appear before the Board when notified to do so, the license was annulled.

The St. Paul Baby Welfare Association has established regular pre-natal clinics in connection with its baby welfare work. The clinics are held twice a week, and this work is followed up by a visiting nurse who will go into the homes of prospective mothers for further instruction. Dr. John L. Rothrock has charge of the clinics.

The Minnesota Public Health Association has begun the publication of a monthly journal devoted to public health matters. Dr. Murphy will, of course, edit it; and, equally, of course, he will make it informative, interesting, and worth while. The price is one dollar a year. Every subscriber will get his money's worth, and will be helping along one of the best organizations in the state.

The South Dakota State Association of Graduate Nurses was organized last month at Rapid City, with the following officers: President,

Mrs. Elizabeth Dryborough, Rapid City; first vice-president, Miss Ivo B. Dyar, Brookings; second vice-president, Miss Irene Labrie, Redfield; recording secretary, Miss Don L. Wertenberger, Mystic; corresponding secretary, Miss Nellie Card, Rapid City; treasurer, Miss Estella McGill, Vale; auditor, Miss Dora M. Taylor, Rapid City. A special meeting will be held in January.

At the annual meeting of the Minnesota Public Health Association, held last month, Dr. W. L. Beebe, of St. Paul, was elected president; Dr. J. W. Andrews, of Mankato, first vice-president; Mrs. A. L. Robinson, of Warren, second vice-president. Governor J. A. A. Burnquist and President George E. Vincent, of the University of Minnesota, will act as honorary vice-presidents; Dr. P. B. Cook, of St. Paul, will continue as treasurer; and Dr. E. L. Tuohy, of Duluth, is the new secretary. Dr. I. J. Murphy, of St. Paul, will continue as Executive Secretary.

### PHYSICIANS LICENSED AT THE JUNE (1916) EXAMINATION TO PRACTICE IN MINNESOTA

#### UPON EXAMINATION

Armstrong, Ellery L.....U. of Minn., 1916  
Bank, Harry Eli.....U. of Minn., 1916  
Bell, John Warren.....U. of Minn., 1916  
Binet, Henry E.....Northwestern, 1916  
Boquist, E. T. Wm.....U. of Minn., 1916  
Bottolfson, Bottolf T.....U. of Minn., 1916  
Boutelle, Louisa E.....U. of Minn., 1916  
Cowin, Carl C. ....U. of Minn., 1916  
Dack, Lloyd G. ....U. of Minn., 1916  
David, Solomon D.....U. of Minn., 1916  
Dyson, James E.....U. of Minn., 1916  
Dunn, James .....U. of Minn., 1916  
Eklund, William J.....Rush, 1916  
Gallagher, Bernard J.....U. of Minn., 1916  
Halgren, John A.....U. of Minn., 1916  
Haskell, Abe I.....U. of Minn., 1916  
Heaton, Archibald B.....U. of Colorado, 1914  
Hobbs, Charles L.....Rush, 1896  
Hullsiek, Harold E.....U. of Minn., 1916  
Jones, Carl F.....U. of Minn., 1916  
Klingen, Oscar M.....U. of Minn., 1916  
Lembke, Carl .....U. of Minn., 1916  
Levin, Oscar S.....U. of Minn., 1916  
Lindall, Albin L.....U. of Minn., 1916  
Paulson, Carl W.....U. of Minn., 1916  
Peterson, Oliver H.....U. of Minn., 1916  
Raadquist, Charles S.....U. of Minn., 1916

Renshaw, Kinsley .....U. of Minn., 1916  
Roy, Joseph A.....Laval, 1913  
Selleseth, Iver F.....U. of Minn., 1916  
Senescall, Cleve R.....U. of Illinois, 1915  
Smith, Lee W.....U. of Minn., 1916  
Snodgrass, Thos. J.....U. of Minn., 1916  
Sutton, Harris R.....U. of Minn., 1916  
Swanson, Roy E.....U. of Minn., 1916  
Thane, Benjamin .....U. of Minn., Non-Grad.  
Villars, Horace S.....U. of Minn., 1916  
Vogtel, Melvin A.....Rush, 1916  
Ward, Percy A.....U. of Minn., 1916  
Wenger, Ferdinand A.....Hamline, 1904

#### BY RECIPROCITY

Fankboner, Audley V...Med. Coll. of Ind., 1898  
Franchere, Frederick W.....Marquette, 1915  
Hulsman, Louis F.....Ohio Med. Coll., 1907  
McKinney, Frank S.....Northwestern, 1911  
Neher, Frederick H.....Marquette, 1915  
Paradine, Daniel J.....Loyola, 1911  
Youngblood, Eli L.....  
.....Chicago Homeo. Med. Col., 1894

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Will sublet dental office in the Donaldson Bldg., Minneapolis. Furniture for sale cheap; fine opportunity for a dentist. Address 380, care of this office.

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A well established practice and small hospital in Minnesota town. Price and terms very reasonable. An excellent opening to one who wishes to do surgery. For further particulars address 374, care of this office.

#### ASSISTANT WANTED

First-class assistant on salary for a year. If satisfactory will take in as partner after a year. Must be able to do x-ray and laboratory work.

Address Dr. Geo. A. Sarchet, New England, N. D.

#### PRACTICE FOR SALE

I wish to sell my \$6,000 practice in a Northwestern North Dakota town of 450 with a large unopposed territory. Nearest competitor is 15 miles distant. Practice goes with residence and office at reasonable terms, or will sell practice separately. Collection and fees are very good. I am taking a city practice. Address 384, care of this office.



## EXPERT VALUATION

Physicians who desire the services of a man experienced in the valuation of office furniture, instruments, surgical, x-ray, and other electrical outfits, libraries, etc., may address 400, care of this office.

## FOR SALE

Instruments, office fixtures, books, furniture, etc. This offers an exceptional opportunity for any one wishing to equip an office at reasonable prices. Address inquiries to Mrs. A. P. Keam, 916 Marshall Ave., St. Paul, Minn.

## ASSISTANT OR PARTNER WANTED

In Southern Minnesota village of 600. Young or middle-aged man with speaking knowledge of German or Scandinavian preferred. When writing give lowest salary, qualifications, and references. Address 373 care of this office.

## PHYSICIAN'S EQUIPMENT FOR SALE

I desire to sell the office fixtures, instruments, library, etc., of my husband, who recently died. Everything has been inventoried and reported in first-class condition. For information address 382, care of this office.

## LOCUM TENENS WANTED

I want a physician to do my work for a couple of weeks beginning August 3 or 4. Give particulars concerning the work you have done. Will make terms satisfactory. Address or telephone Dr. W. E. Wray, Campbell, Minn.

## PHYSICIAN AND SURGEON WANTED

To do institutional work in a southwestern Wisconsin town of 4,000. Scandinavian preferred. Must be young, sober, energetic, willing to work and a good mixer. Graduate of A+ school. References requested. Address 381, care of this office.

## BUILDING WANTED

We desire to rent a suitable building to convert into a diabetic institute, exclusive for the treatment of diabetes, or would rent with the option of purchase a sanitarium or private hospital. Send full particulars to The Jamun Co., Inc., 343-44 Loeb Arcade, Minneapolis, Minn.

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## OFFICE FOR RENT

I wish to rent one of my suite of offices in the Masonic Temple, Minneapolis, beginning September 1. There is an ante-room, which may be used by the tenant of the office, and arrangements may be made in regard to the services of the office attendant. Dr. E. Z. Wanous, 409 Masonic Temple, Minneapolis.

## PRACTICE FOR SALE

Minnesota city practice for sale, or partnership offered. Entirely office practice. Genito-urinary specialty. Wish partner acquainted with this line, as partner with view to successorship, or physician to become proficient in this line. Necessary to speak Scandinavian language. Address 894, F. V. Kniest, Medical Broker, Omaha, Nebr.

## SANITARIUM LEASE FOR SALE

Well-advertised eighteen-room sanitarium; well equipped for nursing; electric-light, baths, steam- and treatment-rooms; splendidly situated in business district. Unopposed; \$5,000 annual cash business. Will assign liberal four-year lease (includes heat), fixtures and equipment below cost. Write for inventory and business statement. Address Granger Sanitarium, Aberdeen, South Dakota.

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is *psychologically* depressing to the patient and causes him to "wonder if the operation was successful." Thus, dissatisfaction with the surgeon's result often arises both with the patient and with the family doctor. The patient becomes morbid, and even a hypochondriac, and "wonders if he will ever get well."

This is in addition to the *pathology* of the condition, namely, the autotoxemia arising from the obstipation, but **INTEROL**, as part of the post-operative treatment, coaxes the anesthetic-deranged peristalsis back to normal, at the same time softening, and then *lubricating* the feces around bends and angulations in the gut, making possible easy bowel movement, without straining at stool.

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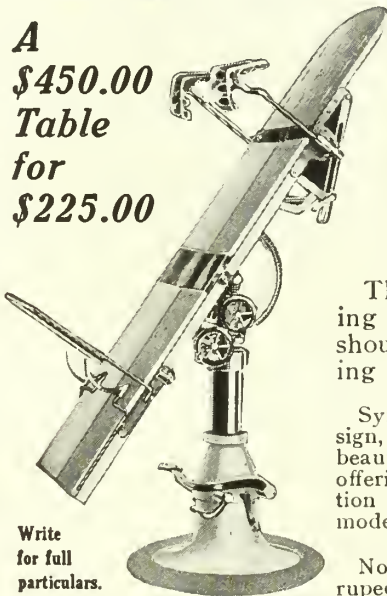
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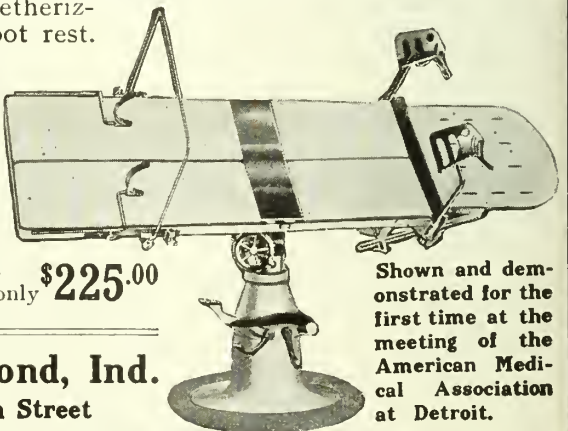
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## THE DOCTOR AND THE STATE\*

BY HENRY M. BRACKEN, M. D.

Executive Officer of the Minnesota State Board of Health

ST. PAUL, MINNESOTA

Mr. President and Gentlemen: Dr. Frederick R. Green was to have spoken to you on the subject of "The Doctor and the State," but as he could not come to you I am trying to fill his place. I am afraid I am not very well prepared to speak on this subject, because, I presume, it should be dealt with from the practitioner's point of view, and I have not been in practice for years. It is possible, however, that I may say some things that will start you thinking relative to the responsibilities of the doctor in connection with the state; and this means, in part at least, in relation to legislative work.

When it comes to legislative work, the doctor generally has in mind the people, and thinks that he can interest the legislator in legislation for the people; but it is very hard, indeed, to persuade the average legislator that the doctor is not trying to legislate for himself.

Physicians in dealing with legislation have to consider two points: one, the licensing problem; the other, the protection of the people.

The health problem is entirely the people's problem, and it is strange that legislators cannot so see it. The licensing problem is also the people's problem because it should insure a safe grade of medical service for the people. The legislator is very apt to think that the licensing of physicians is a protective proposition for the physician. We ought to be able in some way to set the legislator right in these matters. This

calls for one of two things, namely, good physicians in the legislature or the influence of good physicians not in the legislature on the legislators. It is a difficult thing to get good physicians in the legislature. Physicians are busy men, and if they leave their practice they lose it. Somehow or other lawyers can leave their practice and keep it. You will find in every legislature a large percentage of the law-makers are lawyers and a very small percentage are doctors.

The doctor who goes to the legislature must have a great love for that work if he will sacrifice his professional standing, as he must, for law-making. Admitting, then, the difficulty of getting enough doctors into the legislature to have any great influence in legislative measures, what is the next thing? We should endeavor to approach the legislators before they go to the legislature, for during the legislative session they are entirely too busy to do much listening. They are then pulled and hauled by various agencies in many directions; and, more than that, if you tell them something, and they are inclined to believe it and get started maybe on the right track, some of their constituents may present the matter in such a way as to confuse them. They will listen to their constituents before they will listen to you because their constituents voted for them, and you did not.

I do not know that it is necessary for me to tell you how to do things. You know your own state and your own legislature, and you know your own conditions better than I. Doctors cannot get anywhere with legislation for themselves

\*Read at the 35th annual meeting of the South Dakota State Medical Association at Aberdeen, May 23 and 24, 1916.



or for the people unless they can educate legislators and the people as to legislative measures and conditions. You can determine for yourselves how this should be done. Of course, you can have committees, and you probably know that while these committees mean well they often do not accomplish much. You may try to approach your legislators in advance, but, unless they are pretty well instructed and understand your position and your reasons before election, it is often hard to educate them after their election.

There are certain things which you should have that relate to your state organization rather than to the state legislature.

I heard some of your members talking last evening about the increasing tendency of suits for malpractice. It does seem to me that a body of this kind ought to have a protective organization that would take up these matters when they come. You all know that if an individual becomes involved in a lawsuit he is at once placed under a heavy burden, and you also know that if he loses out on a case, it may not affect him alone but the entire profession in the state and possibly in other states because law is built largely on precedent. A lawyer does not have to make a diagnosis of the situation and give an opinion quickly as does the physician. If a physician should deliberate as the lawyer does his patient would either die or get well before he had a chance to give an opinion. The lawyer studies a case carefully to see whether he can find previous cases bearing upon the subject either in his own or some other state, and if he finds anything of advantage he uses that as a precedent in his argument. You can see how a verdict in a jury trial might have a far-reaching effect in this way. It is not a question of each one taking care of his own case and defending himself in the courts, but it is the case of the profession protecting the individual and the profession as a whole. You all know that many of these cases are simply built up, no attempt having been made to bring a suit against the doctor until he proposes to collect his bill, and then, if the patient wishes to evade payment, he may bring action to show, if possible, that the bill was not justifiable. That is not the way that all legal cases are started, but it is the way a great many of them are started, and some of these cases win out.

There is one thing that I am fairly familiar with, namely, public-health work, and that is a

state problem. It is the hardest thing in the world to get what you want through the legislature on health work, and this is strange, too, because the health of the people is not a direct doctor's problem. The doctor knows what should be done, but to secure the best conditions from a health point of view for the people is a problem for the people, and yet when the legislators come together this is probably the last thing they think about. The legislators are interested in good roads, in bridges, in schools, in the "wet and dry" problem, in the health of the live stock, but no one is specially interested in the health of the people. When you try to start a health proposition you may get one or two legislators interested, but it is not a political problem, and so it is not in the race. This is unfortunate. You can get money for almost any fool thing before you can get it for the care of the health of the people. It is not hard to find a state that is spending more money on its animals than on its people. The hog is recognized as having a money value. The human being, since slavery times, is not recognized as having money value, and still every human being has money value. A child that is not a year old has a money value. Of course, you cannot sell a child, but you can sell a hog, and that is the difference. The man who owns a hog can use the dollar he gets for it, but the man who owns a child looks upon it as a thing that comes in the natural process of affairs, and having thus come he has nothing further to do with it.

In the state where I live the licensing of physicians and public-health problems are separate, and I am glad this is so, because these two problems confuse legislators. The legislator looks upon the licensing, as I have already said, as a protective proposition for the doctors. The licensing of physicians is an educational problem. As to health problems: it should be possible to argue for these entirely from the people's point of view. To do this you ought to have an independent health department. In South Dakota you have not, and I think that in this you are unfortunate. To do public-health work properly you should have a man who knows public-health work and you ought to be able with such a man to enlarge this work in your state. The first thing you need is a man with good administrative ability. Next you need the diagnostic aid, and this you should appreciate to the full extent. Locally, if you make a diagnosis of a certain communicable disease, and the patient is not very

sick, the people may dispute your diagnosis and may call in some other doctor who may be a man not of the highest principles, and he may say that your diagnosis was wrong. It is not hard in almost any community to find one doctor who is willing to reverse another doctor's diagnosis, in a mild case of diphtheria, scarlet fever, tuberculosis, or typhoid fever. The State Board of Health, with its diagnostic aid, should be in a position to help out the honest physician in his diagnosis, because it should have men in its employ who are experts on these special diseases and their opinion should stand.

In disputed cases only the State Board of Health should have the right to reverse a doctor's diagnosis of a communicable disease and it should only do this after a most careful study of the case. We realize that the honest physician will give the people the benefit of a doubt, and when he makes a guarded diagnosis he should be supported in this attempt to protect the people. Only the United States Public Health Service should be recognized as competent to reverse the decision of a state board of health. If a physician wishes to reverse his own diagnosis, this is another proposition. Public-health workers should be free from personal responsibility.

In Minnesota we have today an ideal situation, namely, a Division on preventable diseases, which is under the control of a man who has had both laboratory and field training. He was a laboratory man first, and then an epidemiologist. He has under him a group of epidemiologists whom we can send out to take charge of a situation, and he also has the laboratory under his charge.

The laboratory is an aid in diagnosis. Some of you may imagine that you can do your own laboratory work. Yes, but you have not the same protection from your own laboratory that you have from the State Board of Health Laboratory, and, while you may make a diagnosis yourselves in cases of diphtheria, we say it is an excellent thing for you if you have the protection of the state laboratory. This condition has come up to us a number of times. For example, a physician has made a diagnosis of diphtheria, undoubtedly the right diagnosis, he has given antitoxin and his patient has promptly recovered. The physician sends his bill, and the father objects to paying it on the ground that the child did not have diphtheria. If the doctor had sent in cultures which showed the presence of the diphtheria bacillus, then the State Board would

be in position to prove for the doctor that his patient did have diphtheria. If the doctor fails to send cultures to the State Board for examination then he has no evidence but his own statements as to the facts in the case.

The old way of handling public-health problems was to do nothing until an epidemic came, and then to try to suppress the epidemic. The next step was to try to prevent epidemics. Now we are trying to prevent the individual case. One of the best places to do this is in the school. I do not know what you do in South Dakota, but in Minnesota, if any school is closed on account of disease, we criticize the school board. If the school board will notify us that they have had children ill with an infectious disease in the school, we will send a man who will go through the school and look up every suspicious case. All such will be excluded. If you will exclude the ones who are known to have the disease, and the ones that are suspicions, you can keep the other children together in school and control the disease far better than with a closed school. This brings us to the subject of medical inspection of school children, and that means a division in health work, calling for the employment of nurses, specially trained physicians, and all that kind of thing.

I am going to venture a statement as to what you ought to have in South Dakota. First you ought to have a whole-time health man giving his attention to public-health work. When you have this man you will want to think how he would naturally bring in the laboratory facilities. I have talked with some of your physicians, and it seems to me that you are not well situated for establishing one laboratory center in South Dakota. It should be possible for you to establish certain centers in different sections of the state that would serve different parts of the state. These might be local laboratories and state laboratories, too, and they might be supported by state funds and local funds. You might use in your state the system that we are using in Minnesota in our branch laboratories. For example, in Mankato the doctors wanted a laboratory. We did not have much money, but we said that we would provide \$1,200 a year for the establishment of a branch laboratory at Mankato if the doctors would help out. The doctors did help out. They pledged \$1,200 a year; that meant \$2,400 with which to start a branch laboratory at Mankato. There was a fee basis established for the examination of speci-



mens, and the man we put there as a bacteriologist was also a pathologist. A hospital gave us rooms, heat and light for the services of our laboratory men for the hospital. In South Dakota you are in good condition for a health organization, and you can get it if you go at it right, for you have the county as the health unit. The county commissioners must be under certain expense if they do any health work at all in the county. Now, if the money they may spend in a haphazard way was spent under the supervision of a whole-time health officer, they would get more for their money. If, for example, they took the money spent in Aberdeen and the county for health matters it would be sufficient to employ a whole-time health officer and at least one nurse. A branch laboratory might be established in that city. The State, county and city working together could make an ideal health center. You could pick out at least four places in South Dakota where such health centers could be established. That is what you need and what you ought to work for.

If you work along these lines for state health work, you will be getting started in the right direction. You have an advantage over Minnesota in that you have the county unit. South Dakota is not a poor state. If you work it right you will get something. If you are going to work along these lines you had better get busy before election.

#### DISCUSSION

DR. J. G. PARSONS (Sioux Falls): I am very glad to have heard the remarks of Dr. Bracken because he is recognized all over the United States as being a leader in this kind of work, and is at the head of the Council on Health and Public Instruction of the American Medical Association. I wish that Dr. Bracken had taken more time to prod us up a little bit, but, inasmuch as I seem to have had the function of an officer of the State Medical Association, I shall carry on the prodding a little further.

I have prepared a report of the work of my committee on Health and Education, which I will present to the House of Delegates later on; but I wish to make a few comments on some of the things which I wish to report later in carrying out the line of thought Dr. Bracken has presented.

It is a most lamentable fact that we are all aware of, namely, that South Dakota does less for its people per capita, although possessing more money per capita, than any other state in the Union. For public-health purposes, covering every single item, we expend about \$8,000 per annum, which means in the neighborhood of one cent and four mills per capita to protect men, women, and children of our wealthy state from unnecessary sickness and premature death.

Dr. Bracken speaks about the value put upon our hogs. To give you a concrete example for considera-

tion, I will say that at the present time our stud-horses get exactly twice as much each year to insure the animals are in good physical condition as the men, women, and children of South Dakota get, and there are not as many stud-horses as there are men, women, and children in this state. Catfish and jack-rabbits get \$43,000 a year to enable them to possess life, liberty, and the pursuit of happiness, and it is a rather singular and sad commentary upon our intelligence, to say nothing of our business sense.

Your committee has been endeavoring to present some of these things to the general public, and we have been trying to create a sentiment which will lead the people of South Dakota to come to the conclusion that they are not getting a fair deal; that the stud-horses and catfish and jack-rabbits are getting a far better deal than the human being who is producing wealth and who is entitled to a decent amount of protection. These things being true, it is obvious that we absolutely must get the people to realize them. When the people come to understand that they are being cheated they will not stand for it. The trouble is, they do not know it, and there is nobody to teach them except the doctors of the state. A few of us have been putting in our time in doing these things, and we have had a mighty hard time of it and we ask some of the rest of you to help us out. I do not know that I can afford to lose more time than any of the rest of the fellows of the state, but it has cost me in actual time that I have spent in traveling and delivering public lectures for you, helping you to do the job you ought to be doing—it has cost me two weeks of my time, and on several occasions I know it has meant a considerable loss in practice to do it. However, I am not objecting to that. I do the work because I believe it ought to be done, and I have demonstrated it should be done, but the rest of you fellows ought to get into the game and do your part of the boosting.

We have been able to get in touch with a goodly number of people. Our speakers have reached audiences aggregating somewhat over 6,000 during the last year. We have gotten in touch with some of the best educators of the state. We have the School Hygiene Association, which numbers among its members some of the strongest educators in the state who are actively interested. We have a live wire among the county superintendents in the State Superintendent of Public Instruction and the superintendents of the schools in the larger cities in the state. They are very much interested in these things. We have a number of energetic members of the womens' clubs of the state. They want to see these matters taken care of, and now is the time for us to get busy and do something.

I have already made arrangements for one very prominent member of Public Inquiry to introduce a blank demanding the recognition of the needs of public health in South Dakota, calling for the protection of the people of this state by an efficient public-health service which shall be adequate in manner and adequately supported in a financial way.

I believe, as I recommended in my report, that we ought to get busy and have a definite plan laid out with the active co-operation of our legislative committee, with the Committee on Health and Public Instruction, so that we can present this definite plan to our coming legislators, who are to be elected in the fall—get them



acquainted with the needs, and get them committed to the support of these needs before they are elected, as Dr. Bracken has pointed out. In order to do this, we need to have the committee get busy at once to learn from the plans which are carried out in other states, to get in touch with such men as Dr. Bracken, and get their practical advice as to what we need in detail, know just what organization to have, etc.

He has told us about the value of a full-time public health man, which is what we have been working for a number of years, and a number of bacteriologists, inspectors, laboratory men, men who have the necessary training, having this plan prepared in advance so that the men who know how to work the legislative end of things can put that across. We have got to get busy right away. If we do not, we shall be in the same predicament we have been in before. We have been haphazard, and we have not done as much as we should have done in regard to the protection of human life in South Dakota.

I want to make a plea for doing this kind of work, and I want to make a stronger one, if possible, for each individual man to feel that he has personal responsibility to do his part in helping to educate the public.

There are those who believe that the men who are putting in their time in doing this kind of work are getting a whole lot of satisfaction and a whole lot of advertising out of it, and that there is a tendency among the men who take hold of the work of this kind to blow their own horns. Nothing of that kind has been done. I have not found any mastoid cases or

cataract extractions simply by advocating the maintenance of adequate support for public-health service. I do not know that I have got any particular business out of the amount of time I have put into this work, nor have others. We have lost a lot of income by devoting our time to this work when we ought to have been attending to business. We must have your support. It is not fair to have us do all the work.

Our committee has prepared a few outlines of subjects to be discussed. We have an outline for a talk on tuberculosis; another for a talk enlightening the people in regard to the general need of knowledge of infectious diseases and of preventable diseases. The people should know how these diseases are spread. We have another outline of a talk on school hygiene, and there are some other outlines of talks along that line. We have all these things at our disposal, and if you are sufficiently interested we will be glad to send you these outlines, thus saving you some trouble in getting ready and talking to the people that need it. You ought to get into the game. You ought to get in touch with the teachers and superintendents of schools, ministers, and womens' clubs, and arrange for talks in every town. There is not a town in South Dakota so small but what physicians can talk at least three times during the year to the people in their communities in regard to what modern public health is, what the people are trying to do, and what we ought to demand in the way of support from the state and from the cities and counties. That is the principal plea I would make at this time,—that we ought to pull together and ought to help. It is every man's business. (Applause.)

## THE SUBMUCOUS RESECTION OF THE SEPTUM\*

By G. GOLSETH, B. S., M. D.

JAMESTOWN, NORTH DAKOTA

It is within the last ten or fifteen years that the nasal septum has come into an exalted position in rhinological literature; and, we may say, it dates from the publications on the submucous resection of the nasal septum, by Freer, in 1902, and two years later by Killian.

The submucous resection of the nasal septum is considered a safe and scientific operation. It far surpasses any of the older operations in the simplicity of the after-treatment, and it is superior because it insures a perfectly straight septum, one that cannot revert to its former position. There is scarcely any mucous membrane sacrificed, and perforations are rare when the operations are skillfully performed.

It equalizes the nasal chambers and enlarges them by reducing the thickness of the septum, especially with greatly thickened septa.

In no operation do manual dexterity and ex-

perience count for more, and in no procedures do uniformly excellent results testify more eloquently to the skill of the surgeon.

*Anatomy.*—The nasal septum is divided into three parts,—the bony, the cartilaginous, and the membranous septum. The cartilaginous portion is formed by the quadrilateral cartilage and the cartilage of Jacobson, which lies between the quadrilateral cartilage above and the nasal crest and vomer below. The bony portion is composed of the perpendicular plate of the ethmoid, the rostrum of the sphenoid, the vomer, the maxillary crest, and the palatine crest. The perpendicular plate forms the superior portion of the bony septum, and articulates anteriorly with the quadrilateral cartilage and inferiorly with the vomer. The vomer forms nearly all the posterior part of the septum, articulating inferiorly with the palatine crest and the maxillary crest. The anterior extension of the vomer and the maxillary crest forms the lower portion of

\*Read at the 29th annual meeting of the North Dakota State Medical Association at Devils Lake, May 10 and 11, 1916.

the septum and is commonly spoken of as "the ridge."

The coverings of the cartilage and bone form separate envelopes for each part. The perichondrium of the quadrilateral cartilage, as it approaches the ridge, passes under the cartilage to the opposite side of the septum, and completely encloses it. In a like manner, the periosteum of the ridge passes over the bony crest to the other side of the septum, forming a complete envelope for the bone. These separate envelopes are closely united to each other at the junction of cartilage and bone. This means, with the ordinary deflection, which generally consists of cartilage and bone, that at least two separate envelopes must be opened.

*Etiology of Deflection of the Septum.*—Deflection of the septum at birth is unknown. The most active period is during the second dentition. At this time most of the non-traumatic deviations of the septum occur, which most likely are caused by the growth of the upper jaw and obstruction to the nasal respiration by adenoids. This causes the arch of the palate to be raised and the space for the septum shortened, and therefore a deflection results.

*Indications.*—First, in a narrow nose with a small amount of deviation; second, in large nasal chambers with a large deviation so as to interfere with free nasal respiration; third, in supuration of the accessory nasal sinuses; fourth, in any form of otitis media where the catarrh of the nose extends to the Eustachian tubes; fifth, in cases where it interferes with the treatment of the Eustachian tube and middle ear; sixth, in unilateral or bilateral nasal obstruction with catarrh of the upper air-passages, headache, sleeplessness, dry throat, and reflex nasal neurones.

*Position of Patient.*—I have not used the erect position for a number of years, because in a number of cases the toxic systemic effect of cocaine and adrenalin were more or less pronounced. I use a partial recumbent position, with the back raised about thirty degrees, and the head thirty degrees more.

*Anesthesia.*—Morphine and atropin are given thirty minutes before the operation. Both sides of the septum are sprayed with a 2 per cent cocaine solution, followed in five minutes by the application of cocaine and adrenalin, by a cotton wound-applicator dipped, first in 1-1000 adrenalin, and then in cocaine flakes. This mixture is thoroughly massaged into the entire septum

on both sides. Three such applicators will generally suffice to produce anesthesia and blanching of the entire septum. In some cases, it is well to inject a 1 per cent novocain solution in the line of the incision and into the ridge. Where there is a luxation of the anterior end of the cartilage it becomes necessary to inject novocain and adrenalin anteriorly to the cartilage.

*Instruments.*—I make use of the following instruments: Allen-Hefferman's specula, Mosher's specula, specula of my own design, Ballenger's septum knife, Freer's dull and sharp elevators, Freer's curved knife, Freer's dissecting knife, Ballenger's swivel-knife, Hajek's v-shaped chisel, Jansen-Strychen's bone forceps, Noyes' alligator forceps, Jansen-Middleton's forceps, Bruening's forceps (two sizes), Gruenwald's nasal cutting forceps (two sizes), Knight's nasal cutting forceps, Klaar-Alexander's head-light; applicators, nasal specula, etc.

*Technic.*—I make the incision on the convex side, beginning at the highest point of the septum in front of the deflection, and extend it a little forwards and downwards and a little inwards across the ridge, and down to the floor. This parabolic incision has the advantage over the vertical inasmuch as it gives a larger field, and in case of a perforation on the opposite side the flap will cover it. The incision must penetrate the mucoperichondrium and mucoperiosteum. The separation of the mucoperichondrium is started with the sharp elevator, and completed with the dull one. Then the mucoperiosteum of the perpendicular plate and vomer is separated in the same manner; but it is better to make the separation on the ridge after the cartilage has been removed. I make a vertical incision in the cartilage, and begin the separation on the opposite side by inserting the sharp separator at the top of the incision in an upward, inward, and backward direction. By beginning on the top in the direction given, perforation of the opposite side will never occur. The separation is completed with the dull separator in the same manner as on the convex side.

The cartilage is now removed with a Ballenger swivel-knife, or, if the curve in the cartilage is very great, it may be necessary to use the Gruenwald forceps. The capsules of the perichondrium and periosteum are now opened by incising with Freer's curved knife, along the top of the ridge. The mucoperiosteum is separated down to the floor on both sides. The deviated portion of the ridge is removed with the chisel, or it can be

fractured with the Jansen-Middleton forceps and removed, or removed piece by piece with the Jansen-Strychen's forceps. The deviated portion of the perpendicular plate is removed with the Jansen-Strychen forceps, or by fracturing it piece after piece with Bruening's forceps. There is some danger that in fracturing the lines of fracture may extend into the cribriform plate. When all the deviated portion of the septum has been removed, and splinters of bone between the flaps removed, then the flap is brought into place and held with a retractor until the dressing is in place.

*Packing.*—The Bernay's sponge is used on the convex side, and the concave side is packed with gauze strips only when the lining on the concave side has been perforated. The packing is removed within twenty-four or forty-eight hours.

*After-treatment.*—This consists in keeping the nostril on the convex side stopped with cotton and spraying both sides with benzoinol. The nostril is kept closed until the incision is well healed.

#### DISCUSSION

DR. A. J. McCANNEL (Minot): I wish to congratulate the Association on this excellent paper of Dr. Golseth, which, to my mind, treats one of the most important subjects to be considered at this meeting, and certainly the most interesting and important subject in nasal surgery. I think Dr. Golseth has covered the subject very thoroughly. There are just a few points which he mentioned, but did not enlarge upon, due, no doubt, to the shortness of time allotted, that I would call your attention to.

The outstanding feature of this operation is, that it conserves the nasal mucous membrane intact; and the importance of this point, that is, the preservation or conservation of the nasal mucous membrane, can be seen by reference to comparative anatomy. In the surgery of the nose previous to the day of submucous resection, this point was practically neglected, and I wish to emphasize at this time that, although the immediate results are excellent by other operations to give free nasal breathing, still the ultimate results are always bad, and the real result can be known probably only five or ten years afterwards when we have the natural results which follow sacrifice and scarring of the mucous membrane.

Speaking of the sacrifice of mucous membrane, I think there are but very rare conditions where the turbinate bones should ever be disturbed. The first is where there is the polypoid free border, and in these cases this can be trimmed without interfering with the bony structure; and the second is where there are large ethmoidal cells in the middle turbinate, which narrow the breathing space and cannot be relieved in any other way than by removing the anterior ends of the middle turbinate. The results of this operation in the majority of cases are excellent, if thoroughly done, especially in regard to the one complication that I think gives rise to the necessity of submucous resection more than any other, and that is, catarrhal conditions of the Eus-

tachian tube and middle ear, and in these cases it must be remembered that the deviations or cause of congestion are usually posterior, and the operation should be done carefully and thoroughly.

The statement of Dr. Golseth that the operation aims at a straight septum I do not think holds true in all cases, as I do not think it should be our aim to make a symmetrically and perfectly straight septum in every case, but when we have removed the cause of the obstruction, it is not necessary to go further, and a less radical operation should be the one of choice.

DR. J. H. RINDLAUB (Fargo): I want to congratulate Dr. Golseth upon his excellent paper, and also to commend Dr. McCannel upon the remarks that he has made. There is nothing in either to be criticised.

I have been interested a good deal in following up some of these cases and determining just what has taken place in the cases that have been operated on for, say, two or three years. In my office just a few weeks ago I had a co-worker who had had a submucous resection performed in Chicago several years ago. It showed that the softer parts were thoroughly reorganized, there had been no functional disadvantage, and, in fact, if you were to draw your own conclusions, you would rather think that the bone had become reorganized and had formed so that it was really thicker than it would be under normal conditions. I think that we will all agree with the essayist who stated that a submucous resection properly and completely done will reconstruct a perfect functional septum, and we must remember that when we remove the cartilage we have only performed the preliminary step. The real operation really consists in the removal of the deflected portion of the vomer, the perpendicular plate of the ethmoid, and the maxillary ridge.

We must also recollect that the removal of the posterior pressure is more important than a harmonious picture anteriorly. Should the operation be imperfectly performed the nose may appear quite normal when you first glance into it, but, if you will look back further, and especially if you will take your x-ray, you will realize why the respiratory functions are disturbed and the drainage has been prevented.

DR. G. F. DREW (Devils Lake): There was one remark as to which side to make the primary incision. The essayist makes it on the left side. In those cases where there is a ridge over which I do not believe I can elevate the mucous membrane after perforating, I would make my permanent incision on the same side, so that both my perforations would be on one side and leave the other side intact. If we make a permanent incision on the good side and have a very sharp spur not very far back, which we fail to elevate around, then we will perhaps have a perforation opposite, and it will be permanent; but in making an incision on the opposite side from the disturbed, we leave one side intact, and then we do not get any permanent perforation.

DR. GOLSETH (closing): I wish to thank the doctors who discussed this paper, and I do not know that there is anything that I can add to what has been said. I wish to re-inforce the statement that Dr. Rindlaub made, that it has to be done thoroughly. If we remove only a small portion of cartilage and leave



the deflected vomer behind, the operation is absolutely useless; the same thing is true with the ridge. It has to be done thoroughly, and the more resections I do the more I am convinced that it has to be done thoroughly; otherwise it is absolutely useless.

In respect to Dr. Drew's remark about the spur: do you have reference to the spur on the concave side?

DR. DREW: I would make the incision on the same side as the spur.

DR. GOLSETH: I haven't paid particular attention to that because I always make the incision on the convex side.

I also wish to repeat what Dr. McCannel said about the turbinates. I think the less mucous membrane sacrificed the better the operation. Even a small amount of mucous membrane sacrificed always means you are going to have scar-tissue, and have scabbing for a long time afterwards; and, even if you remove a spur, always try to save the mucous membrane.

## FOREIGN BODIES IN THE URINARY BLADDER\*

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Foreign bodies usually enter the urinary bladder through the urethra. In many of the reported cases, a piece of a surgical instrument, for example, rubber catheter or dilating instrument of some kind, has been broken off or lost during the process of examination or treatment.

Packard<sup>1</sup> has collected and analyzed 222 cases, including one of his own, of foreign bodies introduced into the male bladder through the urethra. In 108 instances the object was a part of a surgical instrument. In the remaining 113 there was included a wide variety of articles, almost all different. The foreign body was usually introduced into the urethra purposely, and then lost control of, when it slipped back through the urethra into the bladder. The length of time the objects had remained in the bladder varied greatly; in many instances it is difficult to determine just how long they have stayed in the urethra before entering the bladder. In Packard's own case, a piece of hard-rubber bar had been in the bladder fourteen years. Other authentic cases have been reported of foreign bodies in the bladder for at least fifteen years, and when removed they were usually entirely surrounded by incrustations from salt deposits. Some materials, however, seem to be immune to this; in one of our cases, a piece of bone had been in the bladder for some time, and showed very little incrustation.

In several instances in our Clinic pieces of catheters have been removed, the histories showing that they had probably been in the bladder for several weeks. They were usually discovered during the examination of patients for enlarged prostates or for stones in the bladder, and have been removed when operating for such conditions. The following are brief histories of cases

of foreign bodies in the bladder which were treated in our Clinic:

CASE 1 (A19437).—D. K., female, aged 7 years. Examined January 25, 1909. The patient thought a hairpin got into her bladder about eleven months before. Since then she has had burning on micturition (better and worse by spells) and frequency, with the passage of small amounts of urine at a time; never any hematuria. Bowels, normal; appetite, good; no cramps. Urinalysis showed alkaline reaction, and some pus and albumin. Röntgenogram taken elsewhere showed the hairpin and a shadow in the area of the bladder. A cystoscopic examination was made, and a wire hairpin embedded in the left wall of the bladder close to the urethra was discovered. The free end of the hairpin was incrustated with a calcareous deposit. The inserted end was S-shaped, and could not be removed through a Kelly cystoscope. The child was operated on January 27, 1909; and the hairpin, covered with stony incrustation, was removed through the urethra.

CASE 2 (A73442).—A. R., female, aged 13 years. This patient was examined September 10, 1912. She had been troubled with enuresis since the age of 9. After exercise there was present a dull ache, referred to both loins, particularly to the right. For the past nine months there had been considerable irritability of the bladder, and incontinence most of the time; no obstruction, but a great deal of urgency. Stone in the bladder was palpable per rectum. Urinalysis showed acid reaction, a trace of albumin, a few red cells, and a good deal of pus. In the röntgenogram the shadow of a hairpin, with what appeared to be a phosphatic deposit about it, showed in the vesical area. Examination with the cystoscope revealed a markedly inflamed bladder, and a large rough phosphatic stone the size of an egg. The pin was not visible; however, it was impossible to thoroughly explore the bladder. Suprapubic cystotomy was done September 12, 1912. A large stone, which formed about the pin as a nucleus, was removed, and a retention catheter inserted into the urethra (Fig. 1).

CASE 3 (A112539).—N. C., female, aged 17 years. Examined August 10, 1914. Nothing of note in previous history, except a gradual decrease in the menstrual flow for the past five months, there being at the last period only a slight stain. For one year there had

\*Read before the Western Surgical Association at Des Moines, Iowa, December, 1916.

been urinary frequency, which was gradually getting worse. Ten months before there had been acute pain, not radiating, and lasting for several days, in the region of the right kidney. The patient was in bed three or four days. Pus, but no blood, was noted in the urine a day or two afterward. She had had four similar attacks since then, though during the last one the pain was not as severe and of shorter duration. There had been increasing frequency and burning with a decreasing amount of urine, and occasional incontinence at night and sometimes during the day. The urine, starting and stopping by spells, was then induced to flow again by straining. Bowels, constipated. Appetite, fair.

She said she had used a hairpin about a year ago because she was unable to pass water. The physical

through the peritoneal surface was removed. The opening was sutured with catgut, and drainage inserted. The bullet had penetrated one side of a loop of the small intestine, and an ecchymotic spot was plainly visible on the opposite wall. This opening was also sutured.

CASE 5 (Gr. Book 5, p. 432).—G. W., male, aged 20 years. Examined October 31, 1902. For the past two months there had been frequency of urination, and pain and sometimes blood at the end of micturition. The patient admitted having inserted gum into the urethra. Pus and blood were found in the urine in considerable quantities. A diagnosis was made of stone or foreign body in the bladder. November 8, 1902, a suprapubic cystotomy was done, and a large piece of chewing-gum with stony incrustation removed.

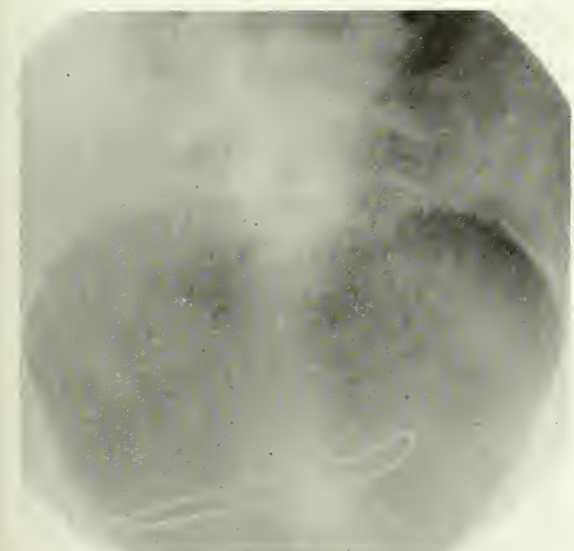


Fig. 1. Hairpin and stony deposit in the bladder. Ends of the pin embedded in the wall of the bladder.

examination showed hypertrophic breasts, pigmentation, and abdominal striae, suggestive of previous pregnancy, which the girl denied. The vagina admitted two fingers. The blood on the examining fingers was probably menstrual. The uterus was small and retroflexed. Urinalysis was negative. Röntgen and cystoscopic examinations revealed a small irritable bladder; marked cystitis; one stone the size of a hen's egg, irregularly elongated, rough, phosphatic, light-gray in color. A diagnosis was made of stone in the bladder, probably with a hairpin as a nucleus. Suprapubic cystotomy was performed under ether anesthesia on August 14, 1914. The stone was removed, and a tube drain inserted outside the bladder. (Fig. 2.)

CASE 4 (A95006).—R. F., male, aged 10 years. Examined November 5, 1913. Six hours before being brought to the Clinic, November 3, 1913, this patient was shot in the abdomen with a 22-calibre rifle, the bullet striking midway between the umbilicus and the pubes. He had vomited twice, and was passing bloody urine; pulse, 90. It was believed that the bladder and probably the intestine had been perforated. He was operated on at once and the bullet which had entered the bladder

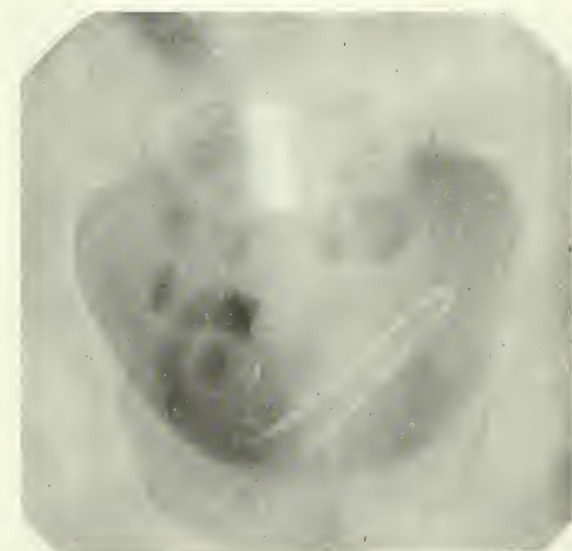


Fig. 2. Hairpin in the bladder with stony deposit about it.

I wish particularly to call attention to two cases that are unique, at least in some respects. In both instances the foreign body had evidently passed into the bladder through the side wall. It is of interest to note that this occurred and produced so few symptoms.

CASE 6 (A109459).—J. M., male, aged 21 years. This patient came for examination July 1, 1914. Twelve years before, an open jack-knife had been thrown at him, striking his left hip just posterior to the great trochanter. A large blade of the knife was broken off, and was never found. After the injury he was confined to his bed for three weeks. No trouble since, except slight frequency by day for a long time. Twenty-one months before the examination, he noticed slightly increased frequency, and after two weeks for two days the urine contained a few drops of blood at the end of micturition. The winter following, he passed urine about once at night and every hour during the day. In the summer of 1913, he noted smarting in the urethra after urination. One year ago, after riding horseback,

all his urine was bloody for a few days. On several occasions he had noted that severe jolting caused pain in the genitalia, followed by hematuria. For several months he had had constant hematuria and pain in the urethra and perineum, the urine flowing freely at times, at others, starting, stopping, and dribbling with marked urgency. Three weeks before coming to the Clinic, he had had severe pain for an hour in the region of the left hypochondrium, radiating to the back. This was accompanied by nausea. He had coughed for at least a year, sometimes expectorating mucus streaked with blood. Occasionally he had night sweats. Weight, normal. On physical examination there was tenderness per rectum, with an indefinite mass at the left, anteriorly, above the prostate. A scar on the left hip one inch long, vertical and posterior to the great trochanter, was

through the urethra, and that during 1910, 1911, and 1912 there was very often blood, sometimes clots, in his urine. In 1913 he again passed fragments of bone with the urine. There was marked atrophy of the left leg with shortening and fixation, old sinuses of the left hip and heel, swelling in the region of the right hip, small abscess on the right forearm, and palpable cervical and inguinal glands. During 1912, 1913, and 1914 he visited the Clinic several times to have plaster-of-Paris casts applied for tuberculous osteomyelitis of the left femur. When he came for consultation, the infection had already extended into the hip-joint. Röntgen and cystoscopic examinations showed the shadow of a detached piece of bone in the bladder. Tubercle bacilli could not be demonstrated in either the urine or the sputum.



Fig. 3. Large stone in the bladder formed around the blade of a knife. Blade entered the bladder through the side wall.

noted. Specific gravity of urine, 1019; some albumin; a few red-blood cells; and a considerable amount of pus. Examinations negative for tubercle bacilli in the sputum and urine. Röntgen and cystoscopic examinations showed a large stone in the bladder formed about a foreign body, and a moderate degree of cystitis. On July 10, 1914, a cystotomy was done, and a large stone formed on a knife-blade removed. The interior wall of the bladder was carefully examined, but neither wound nor scar could be found to show where the knife blade had entered. (Fig. 3.)

CASE 7 (A71701).—T. B., male, aged 18 years. This patient was examined August 6, 1912. In 1909 he had been operated on elsewhere for the removal of a sequestrum in the region of the left os calcis. He was up and around at the end of two weeks. At that time he had a great deal of pain and tenderness in the region of the left femur. Disturbance of the bladder was first noted in February or March, 1909; pain in the bladder occurred just previous to this. He stated that sometime in March, 1909, he had passed a piece of bone



Fig. 4. Osteomyelitis of the femur. Piece of bone which has been separated lying inside the pelvic cavity. Cystoscopic examination showed the fragment of bone in the bladder.

He was operated on on September 23, 1914 (suprapubic cystotomy), and the piece of bone removed. Examination of the interior lining of the bladder did not reveal any scars, nor was there any clue as to how this fragment of bone, evidently a piece of sequestrum, got into the bladder. Doubtless it came from the femur, the result of the old tuberculous osteomyelitis. February 8, 1915, the patient wrote that he was feeling well, and had gained twelve pounds. He notices that when he works hard there is a filamentous and string-like substance in the urine; at other times it is clear. All of the patients made uneventful recoveries. (Fig. 4.)

A number of instances have been reported (Freeman<sup>2</sup>, Harrison<sup>3</sup>, Roberts<sup>4</sup>), in which objects have been removed from the urinary bladder that presumably had been swallowed. A case somewhat similar to those I have reported, is published by Ghose<sup>5</sup>, who performed a lateral cystotomy on a boy five years old, and removed



from his bladder a splinter of wood, which had been driven into his perineum by a fall one year before.

I have been unable to find any parallel to the manner in which the fragment of bone and the knife-blade gained entrance to the bladder. Considering the size of both, it is absolutely certain that neither of them could have entered through the urethra. They must therefore have worked their way into the bladder through the side wall; and, according to the history of the patient's condition while this was taking place, there certainly could not have been any extravasation or leakage of the urine. Undoubtedly, the foreign body was completely walled off in each case. The bladder must have closed as quickly as the foreign body passed in. My experience with these cases has led me to believe that, in making our diagnoses, we should not rely too much on the history given by the patient, a fact clearly brought out by the

Röntgen and cystoscopic findings, as noted in this series of cases. Of course, the manner in which some of the foreign bodies entered the bladder is problematical; but, judging from these two cases, I think it may be assumed that foreign objects may pass through the prevesical tissues and the wall of the bladder into the bladder without doing any permanent injury to the wall, or producing serious symptoms at the time they are passing. At least, this is the view which must be accepted until there is better proof to the contrary.

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## BACTERIEMIA: REPORT OF A CASE\*

By W. F. Sihler, M. D., and T. A. Peppard, M. D.

DEVILS LAKE, NORTH DAKOTA

The general invasion of the blood and tissues by any of the pathogenic micro-organisms constitutes a septicemia, or, according to more recent terminology, a bacteriemia. When in the course of such general invasion, there develop secondary foci of suppuration the condition becomes a pyemia. A toxemia is a secondary condition produced by the invasion of the blood stream by the toxic substances elaborated by bacteria. Pyemia includes septicemia and toxemia. Ordinarily the secondary lesions in a pyemia are due to either the streptococcus or staphylococcus pyogenes aureus, although other organisms may be to blame.

A septicemia develops only as the result of infection at some point, but the portal of entry is not always recognized. This point of entrance may be obvious, as in the case of wound-infection, puerperal sepsis or tonsillitis, less readily determined, as in meningitis, endocarditis, pneumonia, tuberculosis.

The pathologic picture varies little between a toxemia and a septicemia, for in either case the lesions are due to the soluble chemical substances elaborated by the bacteria, whether they be local-

ized or circulate freely. In pyemia the involvement takes place indirectly through involvement of vessels and thrombus-formation.

The general symptoms common to all forms are chills and fever, prostration, headache, restlessness, delirium, and rapid pulse. The special symptoms may be present in certain diseases. Pyemia has additional symptoms due to the secondary suppurative foci.

The diagnosis is made from the history and the general symptomatology, confirmed by blood-examinations and the cultivating of the organism.

The prognosis is variable according to the type of infection; the mortality in septicemia is greatest in the staphylococcic and streptococcic types, less in the pneumococcic type.

The treatment is confined in the main to local foci, primary or secondary. Usually a toxemia will yield readily to these measures. The general measures are rest and fresh air, and general stimulation, with specific measures to increase leucocytosis. Serum therapy is of limited value.

Antitoxic sera, especially the streptococcic, staphylococcic, and pneumococcic, have little or no bactericidal power, and are only slightly antitoxic. They act, supposedly, either by increasing

\*Read before The Devils Lake District Medical Society, April 11, 1916.



the opsonic index or by stimulating the phagocytes. However, the eventual treatment of these conditions will probably be by these means.

## CASE

N. M., Austrian laborer, aged 21, single, was admitted to the hospital October 15, 1915, complaining of weakness, malaise, fever, sore throat, and pain in the left shoulder, the left hip and the forefinger of the left hand.

The previous history was negative as to present complaint, and he denies venereal disease.

The present history was that five days ago he was injured by falling astride a buggy wheel. Following this he was unable to urinate, and a near-by druggist catheterized him, obtaining considerable blood and bloody urine. About three days later he was taken with chills and fever, felt weak, and unable to work, complaining of sore throat and pain in the left shoulder and the hip.

On entering the hospital his temperature was 103°; pulse, 94, and respiration, 26. His throat was reddened, and there was slight swelling of the submaxillary glands. Heart and lungs were negative. Abdominal examination showed the liver distinctly enlarged, and the spleen was not palpated on account of tenderness and fulness. He complained of pain on moving left shoulder and hip joints. There was some bloody discharge from the urethra. On the morning after admission there was a marked edema of the tongue and floor of mouth, so that he was unable to swallow or articulate. The submaxillary glands were greatly swollen and tender. This condition subsided gradually upon use of an ice-bag; no evidence of fluctuation. The urine showed considerable albumin; sp. gr., 1.025, loaded with pus cells and numerous fresh R. B. C.; bacteria. No casts seen. Blood examination showed W. B. C. 20,000; P. M. N., 80 per cent.; lymphocytes, 12 per cent.; transitional, 7 per cent.; eosinophile, 0.4 per cent. He began to cough on October 17. The cough gradually increased, and the lungs were found to show signs of marked congestion; and, later, there was pneumonic involvement. He gradually became weaker, was delirious on October 19 and 20. There were increasing dyspnea and cyanosis. He became weaker, and died on October 21.

The diagnosis was general bacteriemia with adenitis

and terminal pneumonia. Other diagnoses considered were Hodgkin's disease, and infection of the salivary glands through ducts. The treatment consisted of sponges for the temperature, ice-bag, and stimulants,—strychnine and camphor.

The autopsy, performed eight hours after death, showed the body of a well-nourished young man, rigor mortis marked, considerable post-mortem lividity, and some swelling beneath the mandible. On opening the chest-cavity the heart was found in firm systole. Cultures were made from the heart's blood. The heart muscles were normal; and the valves competent. Fresh adhesions were found over the upper portion of the right lung. Over the posterior and lateral surface of the middle and lower lobe there was a thick purulent exudate with firm adhesions. About 25 cc. of bloody fluid was found free in each pleural cavity. The left lung was free from adhesions. The right lung in the lower lobe showed consolidation. The left lung showed marked congestion in the lower lobe. The peritoneal surface was smooth, with no free fluid. The appendix was normal. Jackson's veil was beautifully shown. The liver was enlarged one-third, cut with increased resistance, and presented at lower extremity of the right lobe an old superficial scar, the size of a dime. The gall-bladder was normal; and the glands about the gall-ducts were enlarged. The spleen was enlarged one-third, congested, cut with increased resistance, and showed evidence of a general and marked inflammation. The stomach and intestines were negative. The kidneys were normal size; the definition between the cortical and pyramidal portions was not well marked. The capsule stripped easily. The urinary bladder showed about one drachm of purulent, thick fluid retained, and evidence of old hemorrhage and inflammatory reaction at neck of bladder. The prostate was not enlarged.

The culture made from the heart's blood showed the following characteristics: rather slow, on blood serum gave a distinct yellowish color, on agar was white. Smears showed a pure culture of a small coccus which occurred in bunches, probably *staphylococcus albus*. Intravenous inoculation caused a rabbit to run a distinct febrile course, with abscess-formation at the site of inoculation. Too small a dose or reduced virulence due to artificial cultivation, probably accounted for the mild symptoms.

## A RUBBER APPARATUS FOR APPLICATION OF HEAT TO GROWTHS, CANCEROUS OR OTHERWISE

BY C. M. ADKINS, M. D.

GRYGLA, MINN.

The apparatus, as may be seen, is for the application of heat along ideas advanced by Percy (Journal of the A. M. A., March 9, 1912). Any desired degree, up to 200° F., may be obtained and easily controlled (varying not to exceed 2° F.) by the rapidity of the flow and the size of the tubing with proper protection of radiation, the degree applied being approximately midway between temperatures shown by thermometers

of in-flow and out-flow tubes. With properly shaped apparatus, treatment of many of the abdominal viscera may be attempted, at the same time heating the area containing lymph-glands and draining the diseased portion. In treating the uterus by its application in the uterine cavity and through the abdominal route simultaneously with constriction of its blood-supply, I would think it possible to raise the temperature of the



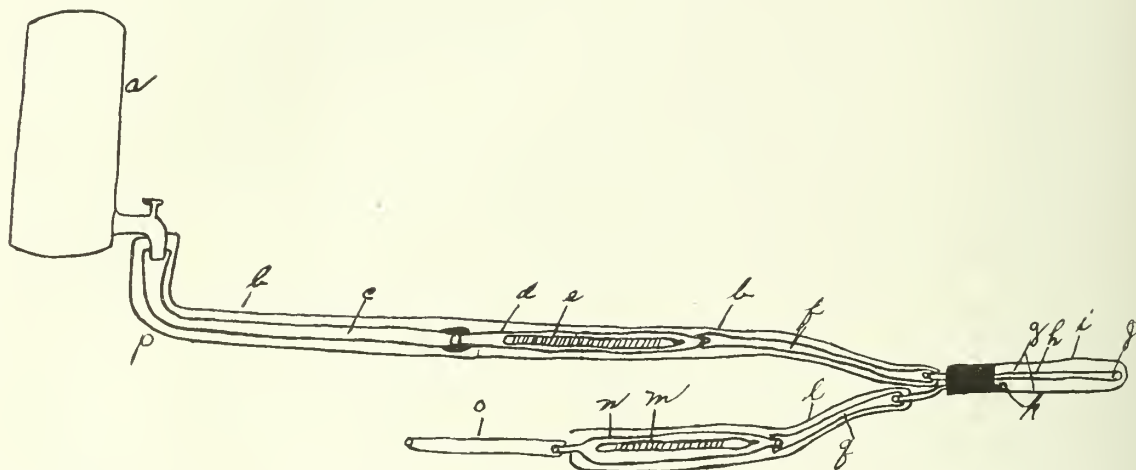
entire uterine body to a degree necessary for the destruction of the cancerous cell.

In treating cavities, the thickness of the rubber glove is desirable, introducing it in collapsed condition where the opening is small and with pressure (elevation of the tank) made to fill the entire cavity.

I am fully aware that this apparatus should not be used generally without first carrying out thoroughly a series of animal experimentation to ascertain the degree of heat and length of the application the normal tissues will permit. As I am a country practitioner, alone and unequipped for carrying out the experimental work, I wish

mal size, some pain, foul discharge, cervix hard and bleeding. Considerable loss of weight; unable to get from bed to chair without assistance; general condition not good. Paralysis agitans for the past seven years, now well advanced. Anesthetic or operation not to be considered. Curettement or excision for microscopical examination omitted as advised by Percy. One-fourth gr. morphine given hypodermically one hour before beginning treatments, which were given May 3d, 10th, and 19th, each of one and one-half hours duration.

A tenaculum was placed in the healthy tissue as far as possible from the os for inserting the apparatus and steadying the uterus during the treatments. Cervix gently dilated in the first treatment only. The temperature in the first treatment was not allowed to reach a higher degree than 155°F., in the second 160°F., and in the third 165°F.



*a.* Hot-water tank. *b.* Rubber tubing preventing radiation, with opening for observing the thermometer. *c.* Rubber tubing inflow. *d.* Glass tubing reduced at one end for the thermometer. *e.* Thermometer. *f.* Rubber tubing inflow, at which point we may use a hemostat or cock to stop the inflow, if desired. *g.* Space into which the inflow empties. *h.* Pliable inflow tube, which may be corrugated to insure the return flow in small cavities. *i.* Rubber forming heating surface, shaped as required to parts treated. *j.* Opening around the end inflow tube. *k.* Outflow tube opening in and around the end. *l.* Rubber tubing preventing radiation outflow with opening over the thermometer. *m.* Thermometer. *n.* Glass tube containing thermometer. *o.* Rubber or metal tubing where rapidity of flow is controlled by a hemostat or cock. *p.* Cold-water tank may be connected if desired, but is unnecessary. *q.* Rubber tubing outflow.

If gas is used for heating water, the tank should be in an adjoining room, the tubing passing through an opening in the wall. The thermometers are kept free from the glass tubing by pieces of cork fitted snugly thus keeping the thermometers in place.

Part of the outer tubing *b* may be dispensed with if the radiation is not sufficient.

to bring the apparatus before the profession so that those interested, and more fortunately situated, may test its merits. I have used it in only one case, of probable cancerous uterus, as follows:

CASE 1.—A woman aged 54, mother of twelve children, the youngest 8 years. Menstruation always regular until fourteen months ago when it became irregular, with severe hemorrhages lasting four to eight days. Uterus enlarged two and one-half times the nor-

mal size, some pain, foul discharge, cervix hard and bleeding. Considerable loss of weight; unable to get from bed to chair without assistance; general condition not good. Paralysis agitans for the past seven years, now well advanced. Anesthetic or operation not to be considered. Curettement or excision for microscopical examination omitted as advised by Percy. One-fourth gr. morphine given hypodermically one hour before beginning treatments, which were given May 3d, 10th, and 19th, each of one and one-half hours duration. A tenaculum was placed in the healthy tissue as far as possible from the os for inserting the apparatus and steadying the uterus during the treatments. Cervix gently dilated in the first treatment only. The temperature in the first treatment was not allowed to reach a higher degree than 155°F., in the second 160°F., and in the third 165°F.

## YEAST INFECTION OF THE THROAT: A CASE-REPORT\*

By W. F. WILSON, M. D.

LAKE CITY, MINNESOTA

The reason for reporting this case is the following letter received from Dr. A. J. Chesley, director of the State Board of Health Laboratories.

Minnesota State Board of Health  
Minneapolis, Minnesota

March 11, 1916.

DR. W. F. WILSON,

Lake City, Minnesota.

Dear Doctor: All of us appreciate your letter of the 8th, in which you relate the results of different treatments in the case of yeast infection of the throat. I have made notes on this treatment for future reference.

I hope that you will publish a statement about the case, for I am sure that it would be of great interest to any physician who encounters similar cases.

We shall be pleased to make any laboratory examinations you desire, and report the findings to you.

Respectfully,

A. J. CHESLEY, Director.

I was first consulted over the telephone on Sept. 30, 1915, regarding some sore throats among the children in a family living in the country.

Five girls had some throat disorder of varying severity, but all exhibiting white spots.

I did not go out to see them, but sent a gargle containing hydrogen peroxide and eucalyptol.

It was reported to me later that the white spots disappeared from the throats of three of the girls in about ten days; but the spots persisted with two of the girls.

I advised them to use hydrogen dioxide, full strength, on a swab, in addition to the gargle but this did not affect the coating in the slightest.

The treatment with mild antiseptic gargles was kept up with these two patients for one month, until October 31, when the girls came in to town; and from the worst case, Mary K., aged eight and one-half years, I sent a specimen, in the outfit used for suspected cases of diphtheria, to the State Board of Health Laboratory.

Her throat looked so bad at that time that I suspected diphtheria, although she did not complain of any of the symptoms of an angina, nor did I understand that any of these patients complained much of their throats, or at any time had any constitutional symptoms. Certainly at the time I saw this patient, one would not have known there was anything the matter with her, except for the presence of this extensive dirty-

white exudate distributed over fauces and tonsils.

The report from the Laboratory came back "no diphtheria bacilli found, but 'yeast infection.' "

I then used a ten per cent silver nitrate solution on a swab every second day, and had the people use a zinc chloride solution daily.

Later I had them use a sulphite of soda solution daily; and about twice a week I applied a preparation of iodine, gr. 16, and potassium iodide, gr. 68, in glycerine, 5 i.

There was not much effect from any of these, possibly a little benefit from the zinc chloride; and on December 8, more than two months from the time the trouble began, I wrote to the Laboratory asking for suggestions as to treatment. I received a very courteous reply from Dr. Chesley, stating that he and his laboratory workers had been looking up the literature of the subject for me, but could find only very little, and that not really helpful.

They sent a reprint of an article by Dr. Louis B. Wilson, written in 1904, on "Non-Diphtheritic Membranous Anginas," which described these cases of blastomycetes, or yeast infection, and stated that they were often serious. Dr. Wilson reported having knowledge of at least two fatal cases, and enumerated a list of several agents that had been used *without* success, but gave no recommendation as to any remedy that might be helpful.

I got a suggestion from Forelheimer's "Therapeutics," vol. v, to try potassium iodide internally, and to use pure copper sulphate on a swab.

I used this treatment on the patient Mary K., applying the copper sulphate twice a week, and had the people at her home use Löffler's solution on a swab two or three times daily.

The latter was thought of because of its penetrating power in diphtheria.

Under this treatment the condition slowly improved, and on January 29, 1916, her throat showed only one or two small yellow spots on one side, corresponding to the crypts of the tonsils.

As the family live ten miles in the country, and it was not convenient for them to come into town very often, and as they were not worried any more about the child's condition, I omitted the internal medication and the use of copper sul-

\*Read before the meeting of the Wabasha County Medical Society at Plainview, July 6, 1916.

phate, and told them to use Löffler's solution once daily.

On March 15 I sent another specimen, and the Laboratory reported "no yeasts found."

This date was five and one-half months from the time the infection began, although the yeast organisms may have disappeared in less time; but during all this period spots of exudate were visible in the throat.

The sister's case was not so stubborn or severe, and, although it required about the same measures, it cleared up in less time.

Of all the remedial agents used, I think the potassium iodide internally, the copper sulphate on a swab, and possibly the Löffler's solution were what caused the condition to disappear; but, after reading of the serious and even fatal results in some cases, I believe that the prompt and thorough treatment instituted in these cases, even if it did not succeed in rapidly killing out this fungus growth, it at least kept it from spreading, and possibly averted a fatal issue.

## THERAPEUTICS IN CHILDREN\*

BY M. J. HAMMOND, M. D.

WATERTOWN, SOUTH DAKOTA

Successful therapy applied to children involves an understanding and a knowledge of detail greater, perhaps, than in any other line of medical work. A great deal of the therapeutic doubt existing at the present time, is explained by the absence of such knowledge on the part of medical men. The time when we can make a diagnosis in the case and cease from interest in the treatment is past. The faith humanity has in curative agents is remarkable; and, if the desired end is not reached by the first physician, another is soon called in, and, if he fails, the next step is the quack or patent medicines. An important requisite in the treatment of children, is the proper co-operation of the mother. It is impossible to do even fairly good work in treating children without this. A direction is never followed out as well as when the reason for it is properly understood by the mother.

Many of our beneficial results are due to the influences of remedies outside of the realm of drugs,—such as fresh air, heat, cold, diet, massage, electricity, and climate. All who will be successful in the treatment of children must have methods that are flexible and adaptable. Children vary a great deal in their mental and physical make-up, and the man who undertakes to treat them all alike will surely fail. Every case must be studied from its own standpoint. Some children should be approached in one way, and some in another. In a great many instances we find the parents have instilled into the child's mind that the doctor is a person to be feared, and he is threatened with all the bad things that

will happen to him if the doctor has to be called. This is done through ignorance on the part of the parents. The man who is successful in treating children must have a tremendous amount of patience. Infants or young children should never be treated in the same manner as adults, either by drugs or other measures.

Nourishment is another important factor, not only in diseases of the gastro-intestinal tract, but, to a greater or less degree, in all diseases. One of the most difficult conditions the practitioner is called upon to meet, is weak and imperfect digestion in infants and children. In few other conditions are knowledge and ingenuity so necessary. Very young and feeble children, particularly when ill, suffer from defective or deficient nourishment. The general condition is improved by an abundance of food which produces an improvement in the circulation and innervation and an increase in metabolism, and causes the secretory and excretory functions to approach the normal. The nutrition of a healthy organ being improved, a diseased organ often shares in it, and in this way is supported and is helped to fight against the harmful effects of the disease. The appetite fails at once or, more frequently, after a few days, in the acute fevers, and with this failure the amount of food taken is diminished, while, as a rule, in the acute febrile diseases a plentiful supply of fluids seems to be indicated to maintain the secretions of the glands and to prevent a stasis of the excretions from the intestines and kidneys. It is not always a good policy to try to prevent loss of weight by increasing the quantity of food. A temporary loss of weight within certain limits in a pre-

\*Read at the 35th annual meeting of the South Dakota State Medical Association at Aberdeen, May 23 and 24, 1916.



viously well-nourished child, is hardly a disadvantage, since during convalescence the appetite will be so much greater that the loss will be more than compensated. There is no necessity, therefore, in pneumonia, scarlet fever, or measles for urging and bothering a child to take nourishment as in typhoid, cerebrospinal meningitis or suppurative processes. Generally, where the duration of the disease is uncertain, a good nourishing diet is demanded from the outset. A full diet is not always indicated or of use in the chronic diseases, but a highly nutritious diet, suitably planned, forms an essential part of the treatment in a few of the chronic diseases, such as infantile atrophy, exhaustion, and scrofulotuberculosis. When the appetite has failed, there are many ways of stimulating and increasing it, the knowledge of which is of great practical importance. Above all, it is necessary to prepare the food properly and offer it in such variety and at such intervals that it will be taken with relish. Appetizing, stimulating, and nourishing foods should be used, and should be combined with due regard for the individual taste, and for the vagaries of appetite caused by illness. In this way, it is often possible to give more nourishment than when the diet is arranged upon a purely theoretical basis without taking the tastes of the patient into consideration. The mental state of the child should also be taken into consideration, for its well-known effects upon digestion. An effort should be made to awaken cheerful thoughts during the meal, for mental depression from pain, mourning, and particularly from home-sickness, hinders it.

The care of the child is of just as much importance as is its nourishment. How often do we see children recover perfect health when both of these points have received attention; aside from the wonderful healing quality of natural food (breast milk) for infants, a mixed diet in older children will often immediately cure a disturbance in nutrition or digestion which has resisted all other methods of treatment. The therapeutic value of proper nursing, like proper nourishment, may manifest itself in such an unexpected manner when employed in a case in which it has not previously been used, that the real importance of the treatment may not be realized. Extreme cleanliness of body, the linen, and the clothing, will induce a more rapid recovery from many skin diseases (eczema), and will prevent complicating skin affections in acute diseases of the intestines. Cleanliness of the

hands should be given special attention; and the mouth and teeth, especially the teeth, should be kept clean by brushing at least twice a day. The clothing, which in general should be suited to the season, should be neither too light nor too heavy.

Fresh, clean air for the sick-room not only should be strenuously urged for its favorable effect upon all diseases of the respiratory passages, as well as for its importance in all chronic diseases, but it is absolutely required during such conditions as catarrh of the larger and smaller bronchi and particularly in whooping-cough, pneumonia, rickets, tuberculosis, etc. To maintain the purity of the air, it is necessary to remove such furnishing as may create or retain dust. The sick-room should be thoroughly ventilated, day and night, either directly or indirectly, according to the weather, at the same time avoiding draughts. The open-air school movement is spreading rapidly over the country, and there is a deep interest in the physical welfare of school children, and it is the conviction of part of our people that the time to serve these children is when they are in the public schools, and that it is not good business to allow them to sit for six or eight years with handicaps and defects that are preventing them from receiving the thing which the school wants to give. Kingsley, of Chicago, who has had large experience with their workings, reports that New York City has 250 open-window classes with the same number of children in each class as in the regular schools, and that the results are better than in closed rooms. Many other cities have open-window classes. Children, of course, should not be subjected to extremes of temperature unless they are properly provided for it. There is no reason, however, why all the schools in the country should not approach much more nearly the open-air schools than at the present. In making studies of the etiological factors in the production of rickets it has been demonstrated that in families in which the disease is practically unknown, the children lead out-door lives the greater part of the time.

In conjunction with fresh air, bright daylight should be admitted into the room for the sake of its purifying and invigorating effects. The one exception to this rule, is in inflammation of the conjunctiva. As this occurs, for instance, in measles, it is better to have the shades partially drawn.

Most of the diseases of childhood are favor-

ably influenced by the use of water applied in any way. Like any other remedy, when misused, water may become harmful, and it is often used only to supplement some other form of treatment. A knowledge of the various methods of administering this powerful and valuable remedy, is indispensable to the progressive physician. It is not sufficient to know how to administer the various forms of treatment, but an intelligent knowledge of how the system responds and the results to be expected are equally necessary. Sponging with plain water, with salt water (a teaspoonful of salt to a pint of water) or with alcohol and water (one part alcohol to three parts of water), is a means of reducing high temperature, with which every physician should be familiar. Cool sponging at 75° to 80° F., plain or medicated, is useful for two purposes,—as a sedative and for the reduction of fever. In measles or scarlet fever, although the temperature may not be high, the itching and burning of the skin prevent sleep, and the little patient is very uncomfortable, but often, under such conditions, he will fall asleep during a careful sponging. A sponging of ten to fifteen minutes three or four times a day with cool water (65° to 75° F.) will greatly help a baby, whether sick or well, to pass successfully through the hot days of summer. Sponging for fever, while possessing less antipyretic value than other measures, such as a cold pack, for example, has the advantage in that it is safe and easy of application in the hands of the most unskilled, and will be of assistance in reducing high temperature when other means are not available. In order not to antagonize or frighten timid children, it is often wise to begin with the water at 95° F., and reduce the temperature gradually by the addition of cold water or small pieces of ice. It is rarely necessary to go below 60° F., and usually the sponging should not be continued longer than thirty minutes. Every part should be sponged in turn. The patient should not be exposed, but should be covered by a flannel blanket. When completed, the patient should be briskly rubbed for a few minutes with a dry rough towel. The cool pack, properly applied, is free from the slightest danger to the patient, and is the best means we possess with which to combat a continued high fever. The pack may be used as freely and with as much success in treating exanthematata as in dealing with typhoid fever or pneumonia. The water used to sprinkle the pack should be 95° F. to

start with, and gradually reduced to 85, 80, 70 or even 60 degrees if necessary to secure reduction of the fever.

A mustard bath is prepared by adding a heaping tablespoonful of mustard to six gallons of warm water. From five to ten minutes in the bath is all that is advisable to allow. The special use of the mustard bath is in the treatment of convulsions. It will be found useful also for nervous children who sleep badly. Two or three minutes in the mustard water, followed by a quick rubbing before going to bed is often all that is needed to induce refreshing sleep.

A difficult problem for the physician to overcome, is the necessity of prescribing drugs. This tendency should be counteracted by the enlightenment of the public, and a better knowledge on the part of the physician of the subject of general therapeutics. It is in pediatrics especially that the physical and dietetic measures are often more important than the chemical.

The use of ill-tasting medicines may, at the very outset of the treatment, arouse antagonism in the child, which is all the more undesirable in that it might have been avoided. The medicine may also interfere with the taking of nourishment.

The efforts of pharmacists to produce drugs in compressed form of exact doses, are of especial value for children. The tablets should be dissolved before administering them, inasmuch as they cannot be swallowed by children.

The time for the administration of medicines should be regulated by the contemplated action of the drugs. If, for instance, it is desired to treat a mild catarrh of the mucous membranes, it is necessary to bring the medicament into contact with these membranes frequently, say, about every two hours. If the body is to remain under the influence of the drug, the frequency of the dose must be governed by the rapidity with which it is excreted. Some drugs do not produce their full effects until a certain quantity has been taken, therefore they should be given at short intervals until the effect is perceptible. It is necessary to consider the relation of medicines to the meals. Those which are intended to stimulate the appetite, should be given before meals; those which may easily irritate the mucous membrane of the stomach, toward the end of the meal; and those which should enter the intestines unaltered, should be given when the stomach is empty.

Ill-tasting medicine when mixed up in food and administered to little children, is a source of

future trouble, since the child will distrust foods offered, thus imposing additional difficulties in feeding.

## DISCUSSION

DR. HENRY M. BRACKEN (St. Paul, Minn.): I was much pleased with the paper, and especially pleased with that part in which the essayist had so much to say about the proper handling of the child without giving it drugs. I think that is one of the chief things that should be considered in the therapy of children, and I think that is one of the places where the older doctors lost out. They gave too much attention to drugs and not enough attention to other things.

The doctor dwelt upon prophylaxis, and referred to the child in school as well as the child before school age. I was glad indeed to know what he had to say about the open window in the school-room. That I think is the coming thing in this section of the country. The open-air school is all right during certain months, but the open-window school-room is all right the year around. This will have a beneficial effect along several lines.

At the present time we spend a great deal of money in an attempt at the artificial ventilation of our school-rooms. One evening last winter, I went through one of the best school buildings, one of the newest school buildings, in Minneapolis. It was a show building. There were no night schools on at the time. The halls had most satisfactory air in them. Each time we stepped into a class-room we went into a closed box with a temperature of about 76°. How under the sun men and women who had been working all day, could do any studying in that temperature is more than I can understand. I asked the guide if there was any particular system of ventilation for that building, and he was surprised at the question. He said, yes, they had one of the most elaborate systems of ventilation; but the air was stuffy, and the temperature 76° when I entered. You cannot study in a room with a temperature of 76°.

I spoke to one of the principals of a high school in Minneapolis a short time after that and he said, "Yes, it is a common thing to go into a room and find a temperature of 78° or 80°, and if the temperature gets down to 72° or below the school teachers complain."

There is another thing the open-air school-room is going to do. It is going to make the teacher dress differently. Teachers dress, or rather undress, about as far as they dare nowadays, and the children come to school well dressed. They are not under the same conditions, and the temperature of the room is regulated to satisfy the undressed condition of the teacher, and not the dressed condition of the pupil. The open-window school-room is going to make the teacher put on more clothes, even if on the outside.

There is another point: We do not want the children to be too cold. Dr. Miller, of New York City, had a very excellent article on ventilation which he presented at Washington two weeks ago before the American Climatological Association, and the point was made that in studying we could do better work between certain temperatures. We can keep between

these temperatures with the open-window school-room because, if it is cold weather, we can have the steam turned on, so that the temperature does not go down as low as it would in the open-air school-room. The best working temperature is between 50° and 60°.

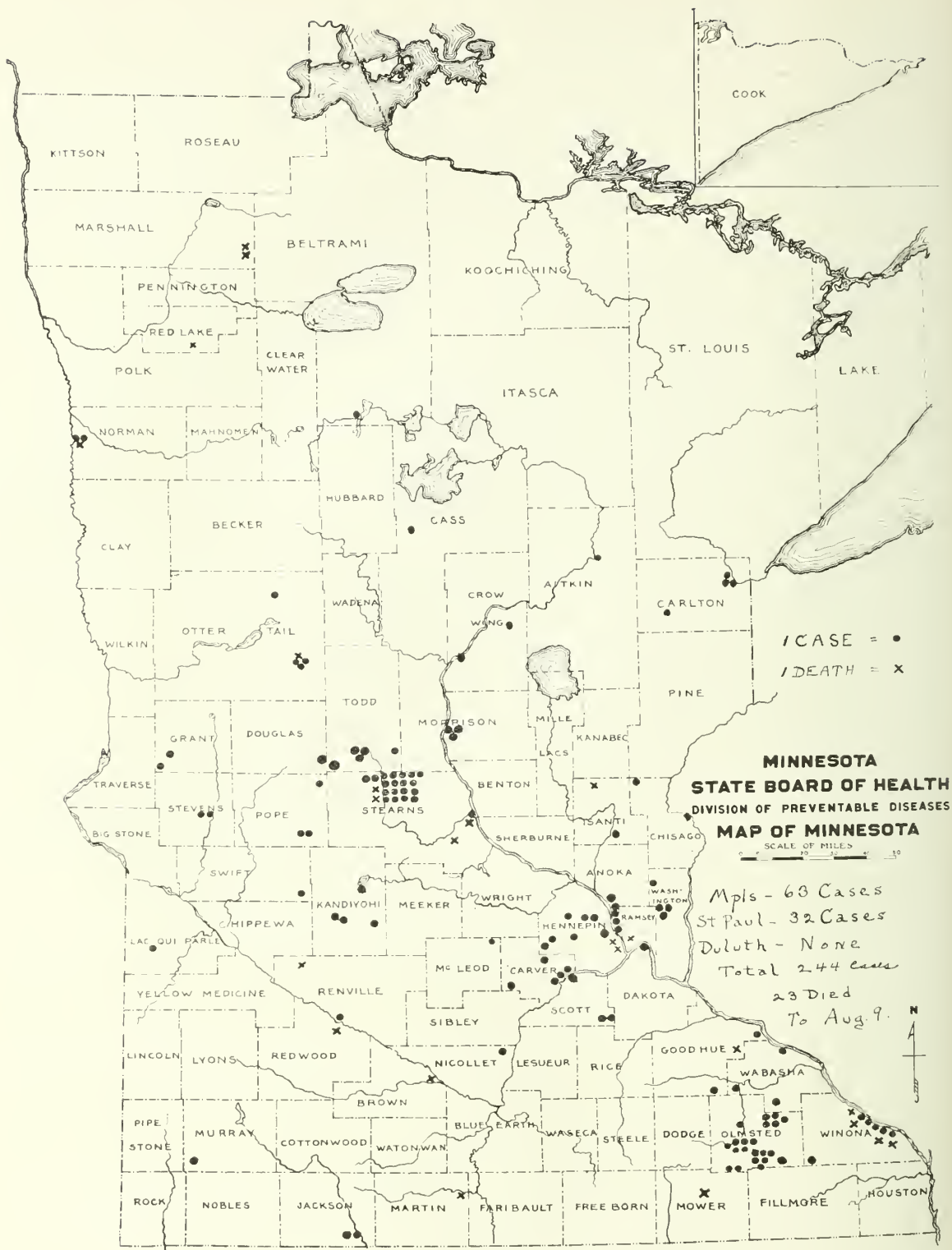
In considering the open-window school-room one should take into consideration the directions of the wind, and it seems to me we should rather have the windows opening out, in some instances at least. Let us suppose you have your school building with windows on the west side. If the wind is from the northwest, the windows ought to be so hung that they will swing out, and the wind strike the window rather than the opening. You have plenty of opening. You can make the window firm. You will have plenty of opening for ventilation. You have the wind rushing past and acting as a means of favoring movement of the air from the room, and you will get good results, whereas, if the window swings in, and if the wind is blowing in the school-room, it will demoralize everything.

You realize, I think, the best light for a school-room is either east or west; it should not be north or south. You should not have north because you never get sunlight in the school-room. You should not have south because it is too bright. With an east room you have sunlight in the room, but in school-rooms with west light you do not have sunlight in them until nearly the close of school time. Nowadays we ought to have light only from one direction in the school-room, and that makes it easy for the open-window school-rooms.

DR. B. A. BOBB (Mitchell): I am very glad to have heard this paper and the reference to the open-window school-room. Last winter, when I gave a talk before the township school boards in our city to a larger audience than is here now, and I advocated what has been set forth today, the farmers shook their heads. As a matter of education, we ought to educate the people in the rural districts. You will find school-houses in which the windows in the rooms are entirely closed. They are shut in the winter, and there is no ventilation whatever. We are endeavoring to educate the people in our township along this line. We believe it is the right and ideal thing to do.

DR. HAMMOND (closing): I have very little to add to what I have already said. I have been much interested in the open-window school-room because I have children of my own in school. In the school my children attend at present the windows of the school-rooms are closed, the ventilation is very imperfect, and as a result my own children come home and complain of headache. They say they cannot study to advantage. Not infrequently, if we go into the country and visit school-rooms, we shall find the windows closed; and, if we mention or point out the importance of keeping the windows open in the day and admitting fresh air, the people shake their heads and think it is dangerous for the children. Again: in the case of sickness among children, if we advocate and practice fresh air by having windows open, if the case does not go just as it should, we are liable to get the blame. We are, in a measure, to blame ourselves for this state of things, because we do not educate the people to look after them themselves as they should do.





This map shows every reported case of infantile paralysis, and death therefrom, in Minnesota from January 1 to August 9, 1916. Dots indicate cases; crosses indicate deaths.

# THE JOURNAL-LANCET

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AUGUST 15, 1916

## THE OPEN-AIR SCHOOL FOR TUBERCULOUS CHILDREN

The Anti-Tuberculosis Committee of the Associated Charities of Minneapolis, in co-operation with the Board of Education, established an open-air school in 1912 with twelve pupils. Last year the attendance reached almost one hundred (96), and the work has been conducted long enough to determine the nature of the problem and whether it has been solved.

A glance at the work of the Board of Education and the Committee of the Associated Charities will be of interest. The Board furnished the building, the teachers, and the general educational equipment, the educational work remaining the same as in the regular course. The Committee of the Associated Charities had sole charge of the health of the pupils. This was the heart of the problem. Food and clothing were furnished all the pupils free of charge, and at an outlay of \$5,000 last year. The food was the very best, and was prepared by three expert cooks. The breakfast, served at eight-thirty, consisted of oat-meal gruel and peanut-butter sandwiches; the dinner, served at noon, was a hearty meal of the best materials obtainable; and the afternoon luncheon, served at two-thirty, was both appetizing and nourishing. The cloth-

ing for each pupil consisted of an Eskimo suit, German stockings, Indian moccasins, lumbermen's felt boots, and two army blankets of the best quality.

At a recent conference of the Board and the Committee a thorough canvass of the results obtained convinced all concerned that the work had been so clearly successful as to make its continuance a proper charge upon the public through the Board of Education, thus relieving this important Committee of the Associated Charities from this work, and permitting it to undertake new and pressing problems.

We know of no work done in the line of tuberculosis prevention that promises so much as the open-air school; and the entire Northwest, especially because of its rigorous climate, owes this Committee a debt of gratitude. The "White-Plague" cannot long stand an attack from the open-air school and the county sanatorium if these two institutions receive proper support in every community.

## POLIOMYELITIS

The attention of the medical profession is again called to the fact that poliomyelitis exists in Minnesota, and that it is a *reportable* disease, and is subject to the same regulations that govern all other communicable diseases. It is quite evident that the men who have studied the subject most carefully observe that personal contact—and that means contact within three or four feet—is the most likely manner in which the disease is spread. However, occasionally cases arise in which it is impossible to trace the contact, and yet the mucous discharge from the nose and throat may in some way be carried by untidy individuals.

It must not be forgotten that adults are liable to have attacks of poliomyelitis, and that it is not a disease confined to children. During last year there were reported to the Minnesota State Board of Health about 127 cases, and of this number more than 95 were reported from the St. Cloud district. The rest were scattered cases from Minneapolis, St. Paul, and other cities in the state.

Any acute illness that suggests toxic disorder should be very carefully investigated, and should be treated with equal care, and a careful search be made for a possible paralysis. The symptoms which are preliminary to an attack of poliomyelitis are those which are incidental to many other acute diseases, hence it is not surprising that the

diagnosis of poliomyelitis is not made until after the onset of the paralysis.

Up to August 9 in 1916, the number of cases reported is 244, but there are still a good many hot days in prospect, and doubtless many more cases will be reported, yet nothing like the extensive epidemic which has gone on in New York and Brooklyn in the tenement rows is to be feared in the Northwest.

It is interesting to note the number of remedies which are offered for poliomyelitis. In the *New York Medical Journal* for July 22d, one physician recommends quinine in small doses for prophylactic purposes. He suggested the remedy on the ground that it is good for other infectious diseases, and consequently may be good for the purpose of preventing poliomyelitis in those who are mildly sick. It is well known that small doses of quinine are absolutely harmless, and there need be no hesitancy in giving it a trial. Another writer suggests ammonium salicylate as a prophylactic measure, and because of his success with the use of ammonium salicylate in epidemic grip he feels that it might be equally efficacious in beginning poliomyelitis, and in suspected cases where poliomyelitis might develop. He also suggested that an antiseptic alkaline solution be used as a throat spray, which is permissible and inoffensive and may be helpful. The third writer suggests that calcium chloride in the form of an elixir is very helpful, combined with rest and quiet and the usual care which is given to those who are sick with suggestive infections. The idea in giving calcium chloride was that it is supposed to decrease a primary congestion of the spinal cord. Many other remedies probably will be offered from time to time.

New York has a great opportunity to study infantile paralysis, and will probably bring to light some very interesting suggestions.

An emergency fund of \$5,000 has been appropriated by the Governor, the Attorney-General and the State Auditor of Minnesota for the suppression of poliomyelitis. This sum is to be drawn upon by the State Board of Health through the Epidemiological Division. This will care for more extended field work, the investigation of the source of the disease, and the isolation of patients. For the time being, Dr. G. D. Haggard has been employed on half time to investigate the cases in Minneapolis and St. Paul, and Dr. Greene, of the Epidemiological Division, will look after cases in the country as far as possible. In other sections of the country physicians will

be employed to investigate cases in their neighborhood.

#### THE DISEASE IN MINNESOTA

Twenty-three cases have resulted fatally as follows:

January .....	3 deaths
February .....	2 deaths
May .....	3 deaths
July .....	7 deaths
August 1-9 inclusive.....	8 deaths

Eighty-two different sanitary districts in forty counties have had cases of the disease. New cases are being reported by telephone or telegraph daily.

The most noticeable grouping of cases is in the central part of the state, where, in Stearns, Morrison, Todd, Douglas, and Pope Counties, the cases are scattered in the territory where the epidemic of 1915 occurred. In the southern part of the state, Olmsted County has a large number of cases, but Winona, Wabasha, Goodhue and Mower Counties also have some cases. Four deaths occurred in Stearns County and four in Winona County. The other deaths are scattered.

At different points in the state, as emergencies arise, practitioners with experience in previous epidemics, are making emergency investigations at request of the State Board of Health.

On July 19 there had occurred ten deaths among forty-seven cases in the state. The disease has spread rapidly, and a serious epidemic is feared. While the number of deaths and the number of afflicted persons is comparatively small, the character of the disease centers public attention on it. Physicians and health officers should report every case or suspected case by telephone or telegraph, "collect," to the Division of Preventable Diseases, State Board of Health, Minneapolis, except cases in the cities of Minneapolis, St. Paul, and Duluth, which will be reported through the local boards of health.

Panic accomplishes nothing, and physicians and health officers should discourage undue excitement, which tends to panic.

Suspicious cases should be isolated. Paralyzed cases should be quarantined for about six weeks after their first symptoms. The children in the family, and others exposed to the disease, should be under observation for two weeks after the case is isolated. During this period they should not attend any public or private gatherings, and should avoid unnecessary association. The adult wage-earners of the family need not be kept from their occupations if the case is iso-



lated. Abortive cases having the usual symptoms, but no paralysis, should always be watched for. No doubt they are as dangerous as the paralyzed cases.

The map on another page of this issue indicates the distribution of the cases and deaths in the state on August 9.

## THE DEATH OF THREE NOTED MEN

SIR VICTOR HORSLEY

Several days ago an account appeared in the public press of the death of Sir Victor Horsley of heat stroke in Mesopotamia. No particulars were given at the time, and nothing has yet appeared in the medical journals regarding it. It is to be hoped that the report is not true.

Sir Victor Horsley was one of England's great men. He was practically the first man successfully to operate for brain tumor, and since that time he has operated on several hundred patients. He was a scientific investigator, a man who gave himself devotedly to his profession, and he was one of the men who made the National Hospital in London famous for its work in nervous diseases. During the last few years Sir Victor has devoted himself to public welfare work, has been active in politics, and has been an active suffragist; and when the war came on he was one of the advisers of the war office, and was assigned later to definite work in hospital locations and later to work at the front.

Sir Victor Horsley was a very approachable man, and many Americans will remember him with sincere feelings of respect and gratitude for his kindly courtesies. The writer knew him personally, and with many others has been entertained at his house, and there met a man, a home man, devoted to his family and equally devoted to his profession. He always had a kind word for everyone, and he was looked upon as a man who was without prejudice. He was not given to slurring comments among his inferiors or his equals. He was knighted for his professional attainments, and his name will go down into medical history as one of the foremost men of his time.

PROFESSOR METCHNIKOFF

The death of Professor Metchnikoff occurred in Paris on July 15. His death took place in an apartment in the Pasteur Institute of Paris. Metchnikoff was a Russian. He was seventy-one years of age when he died. His education was begun in Russian universities and was con-

tinued in Giessen and Munich. He was appointed professor of zoölogy in Petrograd and Odessa. He resigned this position in 1882, and while along the shores of the Mediterranean formulated the theory of inflammation and announced his discovery of the rôle of the leucocytes. He became a director in the Pasteur Institute in Paris in 1895, and in 1909 he promulgated his famous theories on the proper length of life for human beings. He was a great believer in sour milk as a beverage, but he evidently failed to live up to his belief.

He had other theories, too, regarding bacterial diseases, which were evidently not practical. He believed at one time that he had discovered a cure for diabetes, and he had a theory concerning cancer.

In 1915, on his seventieth birthday, he received a golden book autographed by famous co-workers. In 1908 he divided the Nobel prize for medical research with the late Dr. Paul Erlich. He was very enthusiastic in his work, and he devoted most of his earnings to scientific research.

DR. THEODORE B. SACHS

For many years the tuberculous situation in Illinois has been very active, and the care and treatment of tuberculous patients in Chicago was finally committed to Dr. Theo. B. Sachs, who was for many years a student and an expert in his line. He was looked up to by everyone, and at the height of his career, while he was enjoying the confidence of physicians and lay people who were interested in the prevention of tuberculosis, he was shunted unceremoniously by the politicians. The shock of his dismissal was so great that Dr. Sachs was found dead in his room shortly afterwards. There was a great deal said in the newspapers about Dr. Sachs and his work, and a great many people have been thinking very keenly about the uncertainty of the medical man who has charge of the sick, but who occupies a public position subject to the vicissitudes of politics.

The president of the Illinois State Association for the Prevention of Tuberculosis, Dr. Thomas Palmer, has written a very interesting page of biography concerning Dr. Sachs, and he describes him so vividly that one can easily visualize him.

Sachs was born in Russia, and was by birth a Jew. He came to this country as an immigrant some years ago,—just how many his biographer does not say, but it could not have been a very

long period of time, for Sachs was in the prime of his life-work. It was said of Sachs that he was blunt, but he never offended a sane or honest man. What he had to say was said open and above board in a spirit of kindness and from the depths of his experience. He grew up probably under many adverse surroundings, and worked his way, as many a Jew has, by hard, persistent, and studious warfare against his adverse environment until he finally reached the pinnacle of his success as the director of the Sanitarium for Tuberculous Patients. He was educated and graduated as a law student, and then graduated in medicine. In spite of his reputation and the prominence he attained, he died practically a poor man, his entire estate being barely \$13,000.

Chicago will never fail to remember the keen side of Dr. Sachs. He was a man of big mind, big attainments, and has done far more for humanity than the average physician. On account of his bigness he had many enemies who were jealous of the public's appreciation of a man who worked so hard to attain his success, but that is so common an occurrence that it hardly needs comment. It seems rather remarkable, however, that at this day and age the people do not recognize self-sacrificing industry even though it brings prominence and professional attainments. Someone is sure to rise in his littleness, and criticize when no criticism is warranted and only praise is necessary. What Sachs has borne, what trials he has surmounted, and the position which he held in the minds of thinking men of Chicago will outlive his tragic death and all the criticisms that are offered by his enemies.

If the sanatorium for tuberculosis is to be brought under the sway of politics, we certainly are taking a backward step. Any capable man who is willing to give his time and his best endeavors for the benefit of the tuberculosis subject should be spared for that work; and nothing should be put in his way, and no man should prevent his advancement. We suffer from such interference in Minnesota, and there is a rumor abroad that the tuberculosis situation in Hennepin County is about to be evaded by the politicians, and it is time that all thinking men should stand up and express their disapproval of any such procedure.

## BOOK NOTICES

**SKIN CANCER.** By H. H. Hazen, M.D. 251 pages, 97 text illustrations. Price, \$4.00. St. Louis: C. V. Mosby and Co.

This is a very valuable contribution to an important subject. The author covers the entire field of skin tumors, both benign and malignant.

A chapter is devoted to the very important "Pre-cancerous Dermatoses." The assertion "that every cancer of the skin has its origin in some abnormality," is of great importance. The treatment of these pre-cancerous conditions and abnormalities will lead to a marked diminution of this disease.

His handling of the subject of "Skin Cancer" itself is very well done, great emphasis being laid on early diagnosis and early institution of proper treatment.

The book is well illustrated, and should prove of value to both the general practitioner and the specialist.  
—SWEITZER.

**DISEASES OF THE SKIN.** By Richard L. Sutton, M.D., Professor of Diseases of the Skin, University of Kansas School of Medicine; former chairman of Dermatological Section of the American Medical Association; member of American Dermatological Association; Assistant Surgeon, United States Army, retired; Dermatologist to the Christian Church Hospital. Price, \$6.50. St. Louis: C. V. Mosby Co.

The author follows the usual method of procedure. He begins with anatomy and physiology. This is followed by general etiology, pathology, and symptomatology; general diagnosis, treatment; and finally classification.

Particular emphasis has been placed on pathology and treatment. The majority of therapeutic measures mentioned are those which he has found useful and practicable from experience.

His classification of diseases is good. While most authors place infectious diseases in a separate group, Sutton places them in the group of inflammations. He also places in a special group the diseases of the mucous membranes adjoining the skin.

The book is well printed, and especial mention should be made of the numerous illustrations of the various diseases. The majority of the illustrations are excellent, in many instances the diagnosis can be made from the picture itself. The reviewer would call attention to the extensive bibliography after each chapter, indicating a great deal of study in preparation of the book.

—BOREEN.

## NEWS ITEMS

Dr. L. R. Sante, of St. Louis, Mo., has located in Ellendale, N. D.

Dr. George C. Jacobs, of Danville, Ill., has located in Wahpeton, N. D.

Dr. Charles Johnson, at one time mayor of Austin, died July 25 in Chicago, at the age of 57.

As this issue is going to press the death of Dr. John B. Murphy, of Chicago is announced.

Dr. Olof Kittleson has formed a partnership with Dr. A. F. Bratrud, of Grand Forks, N. D.

Dr. W. C. Fossett has returned to Starkweather, N. D., from postgraduate work in the East.

Dr. O. W. McClusky, of Carrington, N. D., has completed a postgraduate course in Eastern cities.

Dr. Clarence Anderson, of Lexington, Ky., has become associated with Dr. C. T. Granger, of Rochester.

Dr. Glenn R. Matchan, of Minneapolis, has returned from Boston, where he has been doing postgraduate work.

Dr. C. A. Platou has returned to North Dakota after a year's absence in postgraduate work. He is located at Litchville.

Dr. E. C. Gaebe, who has been connected with a hospital in Bismarck, N. D., has taken up general practice at Halliday, N. D.

Dr. John T. Bowers, of Gully, has sold his practice. He will spend several months in postgraduate work before resuming practice.

Dr. Arthur G. Kessler, of Chicago, has been appointed superintendent of the Otter Tail County Sanatorium, and has taken up the work.

Dr. W. A. Chamberlin, of Waseca, is taking postgraduate work in general diagnosis and internal medicine at Harvard Medical College.

Minneapolis has 212 beds in its three sanatoriums for consumptives. Fifty more are now needed, and a new building will be asked for.

Dr. Phillip G. Cowing has resumed practice at Evansville after an absence of several years in Montana, where he went for the betterment of his health.

The Minnesota State Board of Health received out of the Governor's emergency fund an appropriation of \$5,000 to prevent the spread of infantile paralysis.

There is a good opening for a dentist in Walker, Minn. Information in regard to the town, etc., may be had from Dr. F. L. Wilcox, of the same place.

The Lippincotts have just issued a work on the "Care and Feeding of Infants and Children,"

by Dr. Walter R. Ramsey, of St. Paul. It is a text-book for trained nurses.

Dr. Lyman B. Shehan, of Superior, Wis., died last month at the age of 61. Dr. Shehan had practiced in Superior about twenty-five years, and was formerly city health officer.

A special meeting of the West Central Minnesota Society was held last month to elect officers to fill vacancies. Dr. M. L. Ransom was elected president, and Dr. E. T. Fitzgerald was elected secretary-treasurer.

Dr. Carl V. Cole, of Lake City, was killed in an automobile accident August 6. Dr. Cole was thirty-eight years old, a graduate of the Homeopathic Medical Department of the University of Minnesota, and had practiced his profession in Lake City for about ten years.

Dr. George D. Haggard, of Minneapolis, has been employed by the Minnesota State Board of Health to prevent introduction and spread of infantile paralysis in the Twin Cities. He will devote half of his time to the work. Physicians will be appointed for special service in other cities as their services may be needed.

The Aberdeen and Watertown District Societies of South Dakota held their annual outing together on the last of July at Pickerel Lake, S. D. The Aberdeen physicians were the hosts. Dr. Franklin R. Wright, of Minneapolis; Dr. R. D. Alway, of Aberdeen; and Dr. C. A. Williams, of Doland, read papers. The attendance was good, and the day was an enjoyable one.

Dr. Gilbert J. Thomas, who has been on the Mayo Clinic staff for several years, being of late the associate of Dr. Braasch, has moved to Minneapolis and formed a partnership with Dr. Hugh S. Willson of this city. Drs. Willson and Thomas will do consultation work largely, Dr. Willson specializing in stomach work and Dr. Thomas in genito-urinary and general work.

The *Modern Hospital* for August is a special number devoted to a symposium on welfare work among corporations. It is devoted to the health and social welfare that corporations can afford to carry on for the good of their employees. So admirable a symposium has an inestimable value at this time of unrest. Every physician should read the number, and be proud of it as coming from physicians.



## PHYSICIAN WANTED

A good doctor is wanted at Coleharbor, N. D. Write to C. A. Fuglie, Secy., Coleharbor, N. D., for particulars.

## DENTAL OFFICE TO SUBLET

Will sublet dental office in the Donaldson Bldg., Minneapolis. Furniture for sale cheap; fine opportunity for a dentist. Address 380, care of this office.

## PRACTICE FOR SALE

North Dakota practice for sale. No competition. Collected \$4,000 last year. Population, 350. Good territory. Will sell for \$200 cash. Address 385, care of this office.

## A FIRST-CLASS DOCTOR WANTED

Fine location, big territory, and a thriving country. No charges on location. All we want is a good doctor. Write or come and see me. J. M. Totten, Randall, Minn.

## PHYSICIAN WANTED

A good doctor in a county-seat town of 700, good farming community, only one doctor here at present. Inquire of Martin Holtan, President Commercial Club, Washburn, N. D.

## PHYSICIAN WANTED

A young doctor who speaks German to locate in one of the best towns in western North Dakota. Have party who will open drug-store at same time. Address 377, care of this office.

## GOOD LOCATION OPEN

A good location in a prosperous North Dakota town of 1,600 is open to a man who can do good surgery, with his general practice. It is a freight division point. Address 389, care of this office.

## EXPERT VALUATION

Physicians who desire the services of a man experienced in the valuation of office furniture, instruments, surgical, x-ray, and other electrical outfits, libraries, etc., may address 400, care of this office.

## GOOD OPENING FOR YOUNG MAN IN MINNEAPOLIS

I will rent my fully equipped office, except for three evenings in the week, in the best outlying district of Minneapolis, and can refer some business to a good man. I have taken a downtown office. Rent cheap. Address 291, care of this office.

## BUILDING WANTED

We desire to rent a suitable building to convert into a diabetic institute, exclusive for the treatment of diabetes, or would rent with the option of purchase a sanitarium or private hospital. Send full particulars to The Jamun Co., Inc., 343-44 Loeb Arcade, Minneapolis, Minn.

## PHYSICIAN AND SURGEON WANTED

To do institutional work in a southwestern Wisconsin town of 4,000. Scandinavian preferred. Must be young, sober, energetic, willing to work and a good mixer. Graduate of A+ school. References requested. Address 381, care of this office.

## PHYSICIAN'S EQUIPMENT FOR SALE

I desire to sell the office fixtures, instruments, library, etc., of my husband, who recently died. Everything has been inventoried and reported in first-class condition. For information address 382, care of this office.

## PRACTICE AND HOSPITAL FOR SALE

Completely equipped 10-bed hospital and office including x-ray with practice which ran \$11,000 this last year. Good proposition for good live young man who can do surgery. Central Minnesota town with large territory. Reason for selling, want to move to city. Address 378, care of this office.

## PRACTICE FOR SALE

I wish to sell my \$6,000 practice in a Northwestern North Dakota town of 450 with a large unopposed territory. Nearest competitor is 15 miles distant. Practice goes with residence and office at reasonable terms, or will sell practice separately. Collection and fees are very good. I am taking a city practice. Address 384, care of this office.

## OFFICE SUITE TO RENT.

I wish to rent one of my suite of offices in the Masonic Temple, Minneapolis, beginning Sept. 1st. These rooms are suitable for a physician or a dentist, and can be had very reasonably.

This is a splendid opportunity for any one desiring to locate down town.

Dr. E. Z. Wanous, 409 Masonic Temple, Minneapolis.

## SANITARIUM LEASE FOR SALE

Well-advertised eighteen-room sanitarium; well equipped for nursing; electric-light, baths, steam- and treatment-rooms; splendidly situated in business district. Unopposed; \$5,000 annual cash business. Will assign liberal four-year lease (includes heat), fixtures and equipment below cost. Write for inventory and business statement. Address Granger Sanitarium, Aberdeen, South Dakota.

## PRACTICE FOR SALE

In town of 500, on one of the most beautiful lakes in Minnesota; large unopposed territory; practice has run around \$3,500 to \$4,000 last two years; collections good. Have a small private hospital, office, and residence combined; do large lumber contract business in the winter. Have accepted a larger field to practice in. Will sell for \$400 if I can make quick sale; this includes practice and considerable office and operating-room equipment. This is a snap for someone taking it quick. Address 388, care of this office.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Fuerperal Septicemia	Accidental Deaths
Ada .....	1,253	1,432	0															1
Albert Lea .....	4,500	6,192	3															..
Alexandria .....	2,681	3,001	3															..
Anoka .....	2,769	3,972	8	2		1												..
Austin .....	1,474	6,960	8															..
Barnesville .....	1,326	1,353	0						1									..
Bemidji .....	2,183	5,099	6															..
Benson .....	1,525	1,677	0															..
Blue Earth .....	2,900	2,319	5															..
Brainerd .....	7,524	8,526	15		1	1	1											..
Breckenridge .....	1,282	1,840	8															..
Canby .....	1,100	1,528	2															..
Cannon Falls .....	1,239	1,385	1															..
Chaska .....	2,165	2,050	2															..
Chatfield .....	1,426	1,226	2															..
Cloquet .....	3,074	7,031	4															..
Crookston .....	5,359	7,559	14	1				1										..
Dawson .....	962	1,313	2	1				1										..
Detroit .....	2,060	2,807	7															..
Duluth .....	52,968	78,466	100	13	1	10	0	0	0	0	0	0	0	1	5	6	1	8
East Grand Forks .....	2,077	2,533	2															..
Ely .....	3,572	3,572	5															..
Eveleth .....	2,752	7,036	4															..
Fairmont .....	3,440	2,958	4	1														..
Faribault .....	7,868	9,001	15		1												3	1
Fergus Falls .....	6,072	6,887	8		1													..
Glencoe .....	1,788	1,788	1															..
Glenwood .....	1,116	2,161	5															..
Granite Falls .....	1,454	1,454	4	2													1	..
Hastings .....	3,811	3,983	5															..
Hutchinson .....	2,495	2,368	0															..
International Falls .....		1,487	2															..
Jordan .....	1,270	1,151	1															..
Lake City .....	3,142	3,142	4															..
Le Sueur .....	1,937	1,755	2															..
Little Falls .....	5,774	6,078	6															..
Luverne .....	2,223	2,540	4															..
Madison .....	1,336	1,811	4		1													..
Mankato .....	10,559	10,365	20	1		1												..
Marshall .....	2,088	2,152	3					1										..
Melrose .....	2,591	2,591	4															..
Minneapolis .....	202,718	201,408	408	45	7	41	8	1	3	0	3	0	0	2	10	26	3	26
Montevideo .....	2,146	3,056	1															..
Montgomery .....	979	1,267	2		1													..
Moorhead .....	3,730	4,840	8		1													..
Morris .....	1,934	1,685	1															..
New Prague .....	1,228	1,554	2	1														..
New Ulm .....	5,403	5,648	11															..
Northfield .....	3,210	3,215	6															..
Ortonville .....	1,247	1,774	2															..
Owatonna .....	5,561	5,653	8															..
Pipestone .....	2,536	2,475	7	1		1												..
Red Lake Falls .....	1,666	1,666	1															..
Red Wing .....	7,525	9,048	12	2														..
Redwood Falls .....	1,661	1,666	2															..
Renville .....	1,075	1,182	1															..
Rochester .....	6,843	7,844	47	1	3												13	..
Rushford .....	1,100	1,011	0															..
St. Charles .....	1,304	1,159	1															..
St. Cloud .....	8,663	10,600	18	2	1							2	1					..
St. James .....	2,102	2,102	3															..
St. Paul .....	163,632	214,744	288	32	5	24	1	2	7	0	4	0	0	1	5	23	0	21
St. Peter .....	4,302	4,176	3	1														..
Sauk Centre .....	2,154	2,154	2															..
Shakopee .....	2,046	2,302	4															..
Sleepy Eye .....	2,046	2,247	1															..
South St. Paul .....	2,322	4,510	4	1														..
Staples .....	1,504	2,558	1			1												..
Stillwater .....	12,318	10,198	8	1		1												..
Thief River Falls .....	1,819	3,174	3		1													..
Tower .....	1,111	1,111	1															..
Tracy .....	1,911	1,825	5															..
Two Harbors .....	3,278	4,990	6															..
Virginia .....	2,962	10,473	12	1		2												..
Wabasha .....	2,622	2,622	2															..
Warren .....	1,276	1,613	3															..
Waseca .....	3,103	3,054	4			1												..
Waterville .....	1,260	1,273	0															..
West St. Paul .....	1,830	2,660	0															..
Willmar .....	3,409	4,135	5															..
Winona .....	19,714	18,583	28	1		2												..
Winthrop .....	813	1,043	0															..
Worthington .....	2,386	2,385	4	1		1												..

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Fuereperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	1															
Aitkin	1,719	1,633	0															
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	1															
Blwabik		1,690	3		1													1
Bovey		1,377	0															
Browns Valley	721	1,058	3													1		
Buffalo	1,040	1,227	1															
Caledonia	1,175	1,372	2												1			
Cass Lake	546	2,011	3		1													
Chisholm		7,684	6	2														
Coleraine		1,613	4			1												1
Delano	967	1,031	1			1												
Farmington	733	1,024	1			1												
Fosston	864	1,055	3	1														
Frazee	1,000	1,645	0															
Grand Rapids	1,428	2,239	1															
Hibbing	2,481	8,832	14	1	2	4	1								1	1		
Jackson	1,756	1,907	5			1										1		
Janesville	1,254	1,173	1			1												
Kenyon	1,202	1,237	2												1	1		
Lake Crystal	1,215	1,038	0															
Litchfield	2,280	2,333	13	2		2										1		2
Long Prairie	1,385	1,250	1															
Madelia	1,272	1,273	1															
Millaca	1,204	1,102	0															
Mountain Lake	959	1,081	0															
Nashwauk		2,080	3			1				2								
North Mankato	939	1,279	2			1										1		
North St. Paul	1,110	1,404	0			1												
Osakis	917	1,013	1			1												
Park Rapids	1,313	1,850	2														1	
Pelican Rapids	1,033	1,019	6	1		1												3
Perham	1,182	1,376	0															
Pine City	993	1,258	0															
Plainview	1,038	1,175	2															
Preston	1,278	1,193	5															
Princeton	1,319	1,555	1	1														
St. Louis Park	1,325	1,743	0															
Sandstone	1,189	1,818	2			1												
Sauk Rapids	1,391	1,745	0															
South Stillwater	1,422	1,343	1															
Springfield	1,511	1,482	1	1														
Spring Valley	1,770	1,817	3															
Wadena	1,520	1,820	1															1
Wells	2,017	1,755	6	1		1			1									1
West Minneapolis	2,250	3,022	2						1									
Whipston	1,132	1,300	2								1							
White Bear Lake	1,288	1,505	1															1
Windom	1,944	1,749	0															
Winnebago City	1,816	2,555	0															
Zumbrota	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum			6	1														
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			5	2					2									
Fergus Falls, Hospital for Insane			14	3												1	1	
Hastings, Asylum			5															
Minneapolis, Soldiers' Home			7															
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			14	1														
Sauk Centre, Home School for Girls			0															
St. Peter Hospital for Insane			9			2	1											
St. Cloud, State Reformatory			0															
Stillwater, State Prison			1															
OTHER PARTS OF STATE			796	86	16	52	4	3	16	0	13	2	3	0	23	55	6	41
Total for state			2184	214	43	159	17	7	36	0	25	4	4	10	57	154	13	132

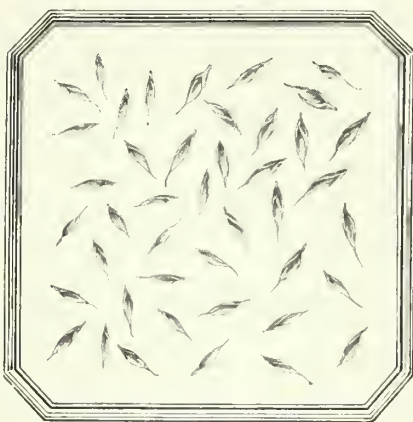
\*No report received. REGISTRAR not doing his duty.

161 stillbirths not included in above totals.





QUEEN GRAINS



STARVED GRAINS

# That Extra Flavor

In Quaker Oats is nothing artificial. It comes from flaking just the big, plump grains.

A bushel of choice oats yields but ten pounds of grains that are fit for Quaker.

Puny, starved oats are insipid. They are good for horses, but not for humans. So we sift them out.

Thus we get oat flakes which are large, white and luscious. And a flavor that delights.

## Quaker Oats

### Queen Grains Only

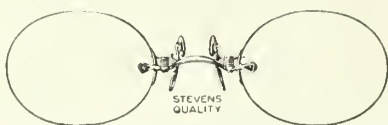
In every country Quaker Oats has become the leading brand. That is true even in the very homes of Scotch and Irish oats. It is true in a hundred nations. And all because of this flavor.

*Regular Package 10c*  
*Except in Far West and South*

**The Quaker Oats Company**

Chicago

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### HIGH FREQUENCY APPARATUS

Messrs. H. G. Fischer & Company, of Chicago, announce in another column that they will cheerfully advise physicians what will best meet their needs under all conditions when they want electrical apparatus, especially high frequency outfits. They believe their line, because of its simplicity and economy, solves the problem under all conditions.

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### ARE DOCTORS NATURALLY POOR COLLECTORS

Or why is it that so many of them permit their outstanding collections to get into such deplorable shape? Undoubtedly, there is quite a "knack" in collecting. If your own efforts are not getting the money, then by all means place your accounts in the proper hands for expert attention, for the longer the accounts stand the less you will realize on them. It's now generally conceded, too, that a number of bad accounts foretells declining prestige.

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### A VALUABLE NEW CATALOGUE

Parke, Davis & Co. announce the publication of their 1916 price-list, which is said to be an improvement in many respects over any previous issue of this valuable catalogue. The book is divided into three parts: Part 1, Fluid Extracts, Pills, Elixirs, Syrups, Tablets, etc.; part 2, Specialties, into which have been merged Special Preparations; part 3, Biological Products. The nomenclature of the U. S. P., Ninth Revision, has been adopted in the new list, the term "Milliliter" ("mil") being substituted for the cumbersome "cubic centimeter." The standards of the new U. S. P. applying to fluid, solid and powdered extracts and tinctures, together with the doses, have also been adopted. All Harrison-act items (products that must be ordered on official order forms) are clearly distinguished. Its amplitude, its handy classification, its comprehensive general index, all serve to make the new catalogue a



reference book of the utmost value to medical practitioners. Physicians are advised to write for a copy, addressing their requests to Parke, Davis & Co., Detroit, Mich.

### QUAKER OATS

The writer has used Quaker Oats so long that he wonders how any other oats can be thought of. Is it not true that no other cereal food demands the best material and the best modes of preparation in so large a degree as oats? We think it is, and we believe Quaker Oats has so many points of excellence that no other should be given either to one in health or to an invalid.

### DAKIN'S REMARKABLE ANTISEPTIC

One of the remarkable discoveries developed by the war is the antiseptic uncovered by Dr. H. D. Dakin, of the Herter Laboratories, who was sent to France by the Rockefeller Institute for Medical Research, where he has been working on antiseptics in a French military hospital. He has found that a synthetic preparation a chloramine made from toluol and having the chemical name of paratoluenesodiumsulphochloramide is not only one of the most powerful antiseptics ever placed at our disposal, but is also apparently entirely free from toxicity, is noncaustic when applied to wounds, and is at the same time extremely stable, both in powder form and in solution.

Since a nontoxic, nonirritant, and stable antiseptic has been sought for many years, and thus far without

success, the introduction of this substance is bound to make a great impression upon surgical practice. We predict that surgeons everywhere, and particularly in the United States, will be quick to give this antiseptic the careful trial which its importance deserves. It has been placed on the market by The Abbott Laboratories of Chicago under the trade name of "Chlorazene." Chlorazene is the identical product advised by Doctor Dakin in his article published in The British Medical Journal of January 29, 1916, and in his subsequent communications on this topic. Any physician or surgeon who is interested (and every physician and surgeon certainly will be) should communicate with this enterprising firm.

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No. 17

## "NARCO-LOCAL" ANESTHESIA IN SURGICAL WORK\*

By R. E. FARR, M. D.

MINNEAPOLIS

It is my desire today to present before this Study Club a number of cases illustrating the use of local anesthesia in surgical work. I wish also to call your attention to a method which I have chosen to describe as "narco-local" anesthesia, and to demonstrate that I am using it with more satisfaction than is usually believed to exist. My effort has been to give the greatest amount of comfort and safety to patients without in any way interfering with the efficiency of the surgical treatment.

In regard to the safety of the method I am not absolutely certain, but I have reason to believe that it is safer than any other form of anesthesia. In regard to the question of comfort, I will say that there is no doubt but that the method used in these cases gives more comfort than I have seen when any other anesthetic was used. In regard to the question of efficiency, I will say that, in most cases, we perform the operation with more completeness and attention to detail than we could have done by any other method; and, in addition to this, in many instances, the amount of trauma necessitated in operations under general anesthesia, has been greatly reduced.

Success in its use depends upon careful attention to details. First, it is found that pain is eliminated exactly in proportion to the thoroughness with which the insulted or injured tissues are blocked, and discomfort is reduced to the minimum by careful handling of the tissues.

Second, the psychic element has been largely controlled by the preliminary use of narcotics, and, in addition, by allowing the patient to understand that he is to undergo an ordeal less severe than where some other method is used. The proper inspiration of the patient has become much less difficult, since we have realized that it was possible to *truthfully encourage* the patient in this regard. It is much less difficult to promote a proposition that has merit than it is to promote one which is without this attribute. A patient can usually ascertain whether or not a surgeon is deceiving him, and, if he is in doubt, a visit with a few of the other patients will usually readily convince him.

A third important element in the system is the procuring of perfect rest the night preceding the operation, and perfect quiet in the morning before the operation is performed. This involves intelligent co-operation of the nurses in charge, proper transportation of the patient to the operating-room, proper exhibition of narcotic drugs, and careful attention to technic after the administration of the anesthetic is begun. I have tried music as an adjunct to the process, as first suggested by Dr. Kane, of Kane, Pa., and I believe it to be very helpful.

The operation under conduction anesthesia, with a sufficiently large incision and the elimination of the element of haste, is usually satisfactory. A careful use of quinine and urea hydrochlorid in weak solution, in addition to the elimination of trauma, has given post-operative comfort, which has made it possible to use much

\*A clinic given at St. Barnabas Hospital before the Study Club of the Hennepin County Medical Society, April 12, 1916.

less morphine or other hypnotic after these operations than usual.

#### CASES

CASE 1.—Mr. L., aged 73.

Operation No. 1, Dec. 16, 1915—Superapubic cystostomy.

Operation No. 2, Dec. 27, 1915—Excision of the middle lobe of the prostate.

Operation No. 3, Mar. 29, 1916—Excision of the lateral lobes of the prostate.

*History.*—For five years there was difficulty in emptying the bladder; up at night. Acute retention.

*First Operation.*—Suprapubic cystostomy.

*Second Operation.*—Bladder opened under local anesthesia. Middle lobe of prostate produced a typical valve formation over the internal urethra. This lobe was removed. As this did not relieve the difficulty, a third operation was necessary.

*Third Operation.*—March 29th, fourteen days ago. The lateral lobes of the prostate were removed under local anesthesia. The patient's only discomfort during all these operations has been from urethral instrumentation. The output of urine has been as great the day following as the day preceding the last two operations.

The second operation was begun with the pulse at 65, and finished with the pulse at 70. The last operation was done under B. eucain, .25 per cent, and the blood-pressure dropped markedly during this operation. This has been my experience in all cases where I have used this drug in any amount.

The second day after the last operation, the patient, when asked how he felt, replied, "I am all right, Boss, only I lost another day."

CASE 2.—Mr. B., aged 73.

Operation, Apr. 1, 1916.—Left direct inguinal hernia; right oblique inguinal hernia.

*History.*—Has worn truss for many years.

*Operation.*—April, twelve days ago. Both operations under B. eucain. Intestine was found in both sacs and a radical closure was effected. Chronic gut used. Patient has had primary healing, no nausea or vomiting or thirst since operation.

CASE 3.—Mr. L., aged 47.

*Diagnosis.*—Acute septic arthritis (staphylococcus) of left knee; abscess of left thigh.

*Operation.*—This man has had seven aspirations of the knee-joint, followed by injections of formalin-glycerine solution. These aspirations of the knee have been somewhat painful in most instances, as the joint surfaces are extremely tender; however, he accepts these repeated aspirations without complaint, which, in my experience, has never been the case where general anesthesia has been used. His temperature is now normal, and he has about ten degrees of motion in his knee-joint. He has not missed a meal on account of any of these operations.

CASE 4.—Mrs. O., aged 46.

*Diagnosis.*—Chronic interstitial mastitis of left breast; left oblique inguinal hernia; varicose veins of both legs.

*First Operation.*—Feb. 19, 1916, left breast was amputated without dissection of axilla, and left inguinal hernia was repaired.

*Second Operation.*—March 25, 1916, multiple ligations and division of veins of both legs, five incisions being made on each side.

This woman entered the operating-room the second time with much less nervousness than she manifested at the first operation, which is significant.

CASE 5.—Mrs. M., aged 24.

*Diagnosis.*—Abdominal adhesions.

*Operation.*—Laparotomy and division of adhesions.

*History.*—Operation seven years ago for appendicitis; operation two years ago for abdominal adhesions. Both operations were performed under ether anesthesia and by other surgeons.

*Operation.*—March 28, 1916. Abdomen was opened under "narco-local" anesthesia by the transverse incision of Elliot; and with vertical retraction the extensive adhesions were divided after blocking. A very marked Lane kink was encountered, binding down about five inches of the ileum. This was liberated, and all raw surfaces were carefully covered. The transverse colon was found adherent to the cecum. The adhesions were divided, and by the use of omental grafts all raw surfaces protected. This patient, having taken ether on two former occasions, was in a very good position to compare local with general anesthesia. She states that under no circumstances would she take ether again.

I wish to present a series of appendectomies which illustrate very well the subject under discussion.

CASE 6.—Mr. C., aged 36.

*Diagnosis.*—Acute gangrenous perforative appendicitis.

*Operation.*—Appendectomy and drainage.

*History.*—The patient has had three previous attacks, which he thought were due to indigestion.

*Present Attack.*—March 16, 1916, sixty hours before operation. Had severe abdominal pain, nausea, vomiting, fever, distention of the abdomen. At the time of the operation the abdominal distention was very marked.

*Operation.*—The abdomen was opened under "narco-local" anesthesia by the Elliot incision. The intestines protruded with great force, and gas was immediately given; but the rigidity and cyanosis were so great that we changed to ether. The appendix was grubbed out of the right iliac fossa, and artery forceps placed upon the base, a tube was run to the pelvis, and the abdomen was closed with the forceps in situ. I think this was the most difficult appendix to remove that I have ever encountered. The abdomen was closed under local anesthesia. The bowels acted of their own accord within twenty-four hours, and he has had no vomiting since the operation.

CASE 7.—Miss C., aged 19.

*Diagnosis.*—Acute perforative appendicitis.

*Operation.*—Appendectomy and drainage.

*History.*—Single; University student. Had two previous attacks, but less severe than the present.

*Present Attack.*—March 21, 1916, she was taken with severe abdominal pain, nausea, and vomiting, and then fainted. She had fainted in both of the previous attacks. I saw her forty-four hours after the beginning of the attack, and the diagnosis of appendicitis was made. On account of the absence of relatives it was impossible to operate at the time. She was sent to the hospital in the ambulance, all food interdicted, mor-



phine given hypodermically, and continuous proctoclysis.

Despite this, in sixty-six hours after the beginning of the attack she had a second severe attack of abdominal pain followed by collapse. The blood-count at this time was 13,000 within a half hour after the attack of pain, perforation being diagnosed.

*Operation.*—March 24, 1916. The appendix was neatly bound up in a wad of omentum with about one-half ounce of pus about it. The pus was sponged out, and the appendix clamped and removed, leaving the artery forceps in situ; rubber tube to the pelvis. She is now walking about, and the wound is nearly healed.

This operation was done under "narco-local" anesthesia, the Elliot incision; the patient grumbled somewhat at the time the appendix was being separated from its bed, but she has no recollection of having been in the operating-room.

CASE 8.—Mrs. P., age 33.

*Diagnosis.*—Acute gangrenous perforative appendicitis.

*Operation.*—Appendectomy.

*History.*—Patient has three children, aged 3, 6 and 8, respectively; one dead ten months ago. For five years she has had occasional attacks of abdominal pain similar to the present one; laid up a few days each time.

*Present Attack.*—Supposed to have started twenty-four hours before the operation. Had pain; vomited three times; abdomen greatly distended. Examination showed general abdominal tenderness, especially on the right.

*Operation.*—April 1, 1916, under "narco-local" anesthesia and with the Elliot incision, the abdomen was opened, and was found full of a thin pus-like fluid; the appendix, adherent in the right iliac fossa, was found perforated and gangrenous. About two ounces of thick creamy pus were liberated with the appendix. The stump was inverted with chromic-gut drainage to the pelvis. She now has a fecal fistula, the discharge showing first on the tenth day.

CASE 9.—Mrs. B., aged 62.

*Diagnosis.*—Abscess of the abdominal wall, direct abdominal or interstitial hernia, acute gangrenous perforative appendicitis, obstruction from peritonitis ileus.

*Operations.*—1st. Feb. 6, 1916. Drainage of abscess of abdominal wall. 2d. March 24, 1916. Appendectomy with drainage. 3d. March 28, 1916. Enterostomy.

*History.*—Climacteric eight years ago. For three years she has had some lumps in the right groin. Thought tumor was enlarged glands. Indigestion during this time. Of late has had some chills, vomiting, and fever. The tumor in the right groin has gradually enlarged, and now presents a large, red, tender swelling.

*First Operation.*—The abscess was opened under "narco-local" anesthesia. Colon-bacillus pus evacuated in large quantity. Appendix suspected at this time on account of the odor of the pus. Uneventful recovery. Patient discharged in two weeks with the wound almost healed.

*Second Operation.*—Three days before entering the hospital she had severe attack of abdominal pain followed by vomiting, and the abdomen has continued tender, especially on the right side. Diagnosis of probable appendicitis was made, and the abdomen was opened under "narco-local" anesthesia by a low Elliot

incision, just above the site of the former tumor. Tumor was found presenting through the conjoined tendon, and the abdomen was opened above this. General cavity packed off, and the appendix grubbed out of the hernial sac, about two ounces of pus being liberated at the same time. The base was ligated, one tube drain passed to the pelvis, and another to the appendix stump. The patient did not vomit for eighteen hours, then began belching up gas and fluid, and, despite the frequent use of the stomach-tube, she continued to regurgitate fluid. The abdomen gradually became distended in its center, and, although the bowels acted well following injections, and the pulse did not go above 96, a diagnosis of peritonitis ileus was made.

*Third Operation.*—The wound was opened under "narco-local" anesthesia. With the finger the appendix stump and cecum were quickly liberated, and then with vertical retraction of the abdominal wall a distended loop of small intestine was allowed to extrude through the incision. Enterostomy was immediately done, and a rubber tube anchored in the bowel. Her improvement has been steady ever since. This patient had chronic Bright's disease and dilated heart; and

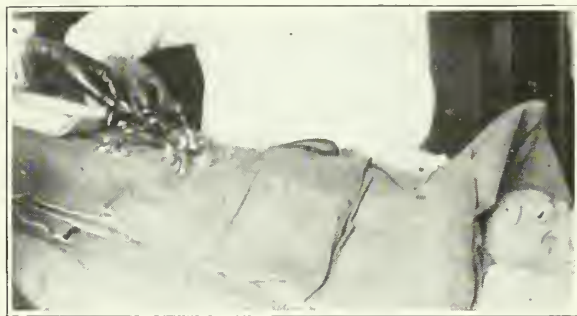


Fig. 1.

on the three days preceding the last operation she passed eighteen ounces of urine.

CASE 10.—Miss C., aged 17.

*Diagnosis.*—Chronic appendicitis.

*Operation.*—Appendectomy.

*History.*—A student. In September, 1915, she had one attack of abdominal pain, and was in bed five days. Temperature ran to 102°. Had indigestion since that time. Had several less severe attacks since.

*Operation.*—April 4, 1916. The appendix was removed under straight local anesthesia. She had not the slightest sensation of pain, chatted with me all through the operation, and states that her trip to the operating-room was not only not unpleasant, but was exhilarating. Her appendix was retroperitoneal over about three-fourths of its surface. This patient had no post-operative pain, gas, nausea, vomiting, or thirst. Her intestinal tract was not touched by the hands, gauze or instruments during the operation, except over an area of about two inches in diameter on the cecum. She asked for a book to read within ten minutes after returning from the operating-room.

CASE 11.—Mr. S., aged 18.

*Diagnosis.*—Chronic appendicitis.

*Operation.*—Appendectomy.

*History.*—Infantile paralysis at three years of age, left leg and arm being involved. One and a half years

ago he had a typical attack of appendicitis, and to date has had about fifteen attacks of supposed indigestion, usually being laid up from a few hours to two or three days.

*Operation.*—April 10, 1916, under "narco-local" anesthesia with Elliot incision. A moderately enlarged kinked appendix was removed. While I was holding the appendix up out of the abdomen, but before it had been amputated, the accompanying photograph was taken. (Fig. 1.)

CASE 12.—Mrs. K., aged 49.

*Diagnosis.*—Uterine fibroids, interstitial and sub-mucous.

*Operation.*—Abdominal hysterectomy—cervical drainage.

*History.*—Patient has five living children, the youngest aged 10. Appendectomy in August, 1914, during an acute attack. I deemed it best not to do hysterectomy for the fibroids, which were examined at that time. Increased flow at the regular period for the past two years. For the last three months, hemorrhages have been very severe, and she has had an interval of only about one week without bleeding. Patient very pale. Hemoglobin, 35 per cent; urine shows albumin; heart is dilated and rapid; some edema of the extremities. She was kept in the hospital several days before operation.

*Operation.*—Feb. 19, 1916, under "narco-local" anesthesia. Abdominal hysterectomy, with drainage through the cervix. This woman had no pain, no nausea or vomiting, or thirst; there was no acceleration of pulse, it being the same when she was put back to bed as before the operation.

CASE 13.—Mr. C., aged 42.

*Diagnosis.*—Internal hemorrhoids.

*Operation.*—Clamp and cautery.

*History.*—Patient has had hemorrhoids for twenty years, and has had many attacks of bleeding from the rectum. Has often had to replace the protruding dilated veins after the bowels act. Every bowel movement accompanied by great pain.

*Operation.*—Under local anesthesia the sphincter was completely divulsed and the clamp-and-cautery operation done. An opium suppository was placed in the rectum, and a thorough blocking was made with quinine and urea hydrochlorid. He states that he has had less pain since entering the hospital than was caused by any bowel movement during the past five years.

CASE 14.—Mr. B., aged 29.

*Diagnosis.*—Acute empyema, right side. Sub-acute empyema with sinus.

*Operations.*—1st. January 23, 1916, Rib resection and drainage. 2d. March 27, 1916, Exploration. 3d. April 5, 1916, Rib resection and lung decortication.

*History.*—The patient, a street railway employee, had pneumonia early in January. Following pneumonia the temperature remained high and the right chest dull.

*First Operation.*—Four inches of the 8th rib were resected under "narco-local" anesthesia on January 23, fully a gallon of pus being evacuated. Although desperately ill he recovered slowly. Bismuth x-rays on January 26 showed a sinus.

*Second Operation.*—Thoracic blocking was done, and the cavity cleaned out and explored. The cavity was found to be the size of two fists, and this had not been

made distinct in the bismuth x-ray on account of the fact that the cavity was full of thick detritus.

*Third Operation.*—April 5, 1916. Thoracic blocking was done from the 4th to the 11th rib on the right side. A portion of the 5th, 6th, 7th, and 8th ribs was resected, and a lung decortication done. Although the lung was five inches from the thoracic opening before the decortication was done, it soon presented at the opening with such force that the operation was carried out with difficulty, the lung being held out of the way with gauze and retractors. At the present time the patient has the Ransohoff suction apparatus in place, and the cavity seems to be very much reduced in size. This man had no pain during the operation, his only distress being due to a rather irritating cough. Local anesthesia is exceedingly satisfactory in this class of cases.

CASE 15.—Miss J., aged 21.

*Diagnosis.*—Exophthalmic goiter.

*Operations.*—1st. January 7, 1916. Ligation of right superior vessels. 2d. April 6, 1916. Excision of the left lobe.

*History.*—University student. Mother has exophthalmic goiter. Patient has had swelling of the neck for six months. Six weeks ago the eyes began to protrude, and the voice became husky at times. She became extremely nervous, and a marked tremor developed in the last month, and she lost twenty-two pounds in weight. She entered the hospital on December 13. Pulse, 140 to 160; large, pulsating goiter on both sides. Complete rest brought the pulse down to 135 to 150. Vomiting was frequent, and the patient was so nervous that it was with difficulty that she was kept in bed.

*First Operation.*—Right superior thyroid artery and vein were ligated and divided. This operation was preceded by a fake hypodermic of novocain, and was done under complete unconsciousness produced by scopolamin and morphine. The patient did not know that she was operated on until six days later, when it was necessary to show her the scar by the aid of a mirror in order to prove up.

During the last thirty days we have made five injections of quinine and urea hydrochlorid, 30 per cent, into the left thyroid, and one injection into the right, as recommended by Dr. Watson, of Oklahoma City, Kansas.

*Second Operation.*—April 6, 1916, under "narco-local" anesthesia the left thyroid was removed. She stood this operation better than she did the ligation, as her condition had become much better. She has had no pain, no vomiting, nausea, or thirst since the operation. Pulse has reached 104, and is greatly improved. This girl has been extremely ill, and at the time of her ligation she had retained only fluid given hypodermically or by the rectum for eleven days.

CASE 16.—Mrs. S., aged 34.

*Diagnosis.*—Post-operative hemorrhage into the broad ligament.

*Operation.*—Vaginal incision, evacuation of clots, and drainage.

*History.*—One year ago abdominal hysterectomy was done by another surgeon. One week ago the same surgeon removed the cervix through the vagina for what was considered a pre-cancerous condition. Since then the patient has had severe pain in the vagina and

lower abdomen, and her temperature was  $103^{\circ}$  when I saw her on March 30, 1916.

*Operation*.—March 30, 1916.—The vaginal stitches were removed, and the wound enlarged under local anesthesia, one pint of blood clots being sponged out and the wound packed. The hemoglobin was 30 per cent at this time.

CASE 17.—Mrs. B., aged 38.

*Diagnosis*.—Left ectopic gestation.

*Operation*.—Left salpingectomy, appendectomy.

*History*.—Two children, aged  $7\frac{1}{2}$  and 2 years, respectively. She nursed her baby eighteen months. Menstrual history for last six months: October, November, and December normal; January period eight days; February, twelve days; began flowing on March 4, and flowed continuously up to the time of her operation on April 3.

*Operation*.—April 3, 1916, under "narco-local" anes-

thesia which is always necessary in using hypodermic syringes. To do satisfactory work in this line in major surgery, one must use much larger quantities of the anesthesia than is the custom; and, if a larger quantity of the solution is used, the actual work of injecting it with a hypodermic syringe is exceedingly irksome.

In the injection of the local anesthetic the pneumatic injector (Fig. 3) was used in all cases. This lightens the work greatly, and has entirely

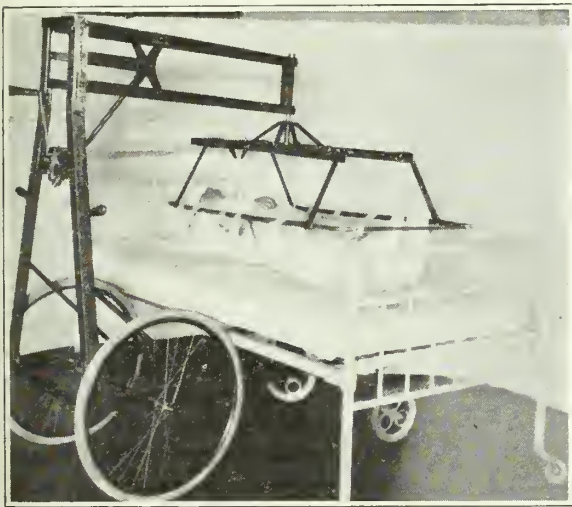


Fig. 2.

thesia the abdomen was opened, and a large organized blood clot was shelled out of the pelvis. The left tube, one and one-half inches in diameter, had ruptured; the embryo could not be found. Left salpingectomy and appendectomy were done. A tube drain was introduced for forty-eight hours.

This patient has had no pain, thirst, nausea, vomiting or distention since the operation.

I now desire to show the automatic crane (Fig. 2) which I have designed for the purpose of transporting these patients from the bed to the operating-table and back without unnecessarily disturbing them. The divided canvas stretcher which I show is placed beneath the patient early in the morning, perhaps after he has had his first quieting hypodermic. The removal of a patient of any size can be easily accomplished by my anesthetist without aid.

For the introduction of the anesthesia I have designed the pneumatic injector, which makes use of compressed air as the force behind the solution, and eliminates a great deal of detail,

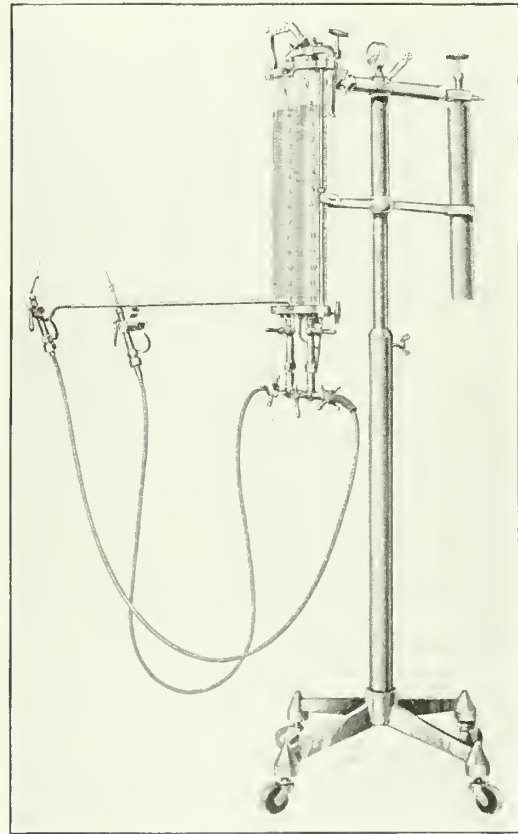


Fig. 3.

eliminated local-anesthesia syringes from my operating room.

The average dose of morphine in these cases was one-third of a grain and of scopolamin  $1/100$ .

The total number of operations represented in the cases shown was twenty-five. After these operations 19 received no morphine; 2 received one dose; and 4 received more than this. In view of the fact that my orders are that all patients be given all the morphine that is necessary in order to keep them free from pain, the post-operative comfort in these cases is, I think, exceptional.



## IS INSANITY INCREASING?\*

By W. M. HOTCHKISS, M. D.

JAMESTOWN, NORTH DAKOTA

I have chosen a subject which has seemed to me to be of the deepest importance, not only to those interested in neurological work, but to the general medical profession, and equally so to the community as a whole; and I offer no apology for presenting before a medical society a paper dealing almost wholly with disease of the mind, because it seems to me that the medical fraternity should consider disease of the mind and the functions and organic disease of the nervous system, as well as any other condition affecting the economy of the body. Personally, I do not see how they can be separated, and I think that much can be accomplished by the physicians of the community in reducing the number of insane that are crowding our institutions.

Is insanity increasing?

If one were to take seriously the statements of recent writers, it would be easy to become convinced that the entire nation is fast tending toward insanity. They point out the large number of insane in state hospitals as proof positive that mental disease is rapidly increasing; and, in fact, figures presented from all communities where insane are given adequate care, seem to show conclusively that, because of the increase, the expenditures for their care are becoming very great indeed. Reasons for this condition are not well understood except by those directly interested in the subject, and might be advanced as follows:

1. With improved conditions in hospitals for the insane there is less objection to commitment, either from the patients or their relatives.

2. With better care patients live longer than they lived under former provisions made for them.

3. With better knowledge of insanity on the part of the physicians, cases are recognized earlier and the victims of suicidal mania are committed before the stage of self-destruction is reached.

4. The greater proportionate number of persons residing in cities makes it much more difficult for families to conceal cases of insanity in their homes, and consequently there are more commitments.

The old plan was to simply provide an asylum for the individual, and, if nature kindly inter-

vened in his behalf and a re-establishment of normal mentality was obtained, it made no particular impression, one way or the other; or, if a patient did not recover, it was taken as a matter of course, and no one interested himself in the case, nor was anyone censured, but I am glad to say that recently more advance has been made in the care and treatment of the mentally afflicted than has been made in the general medical field, and much more is expected in the near future.

The importance of mental disease as a sociological factor is very great. The withdrawal of large numbers of persons from productive occupations is in itself bad enough, but the suffering of the patients themselves and the worry and anxiety of the family are even worse. The public still looks upon insanity as a disgrace, and the members of the patient's family feel this condition keenly. The public should be advised that insanity is not always incurable, as so many imagine, and that even with inadequate facilities about one-third of all cases are either completely cured or benefited to the extent that they are enabled to be returned to their homes and become partially or wholly self-supporting. The general public holds that all insane are the same. They are all "raving maniacs," liable at any and all times to kill either themselves or their keeper, while, with the exception of a comparatively small number in each institution, the reverse holds good and they are easily managed and well behaved under supervision. Much mystery has always been thrown around the insane and their behavior, but more recently it is clearly shown that the various delusions and hallucinations have a definite relation to previous mental experiences.

What greater problem faces the public at the present time than the prevention and cure of insanity, and what field is broader and has been less worked out? If insanity is not increasing it is certainly not decreasing to any encouraging extent; and, whether actually increasing or not, the fact remains that there is an increase in the numbers in institutions, and it is with this fact we have to deal.

The study of insanity is almost an untrodden field in the United States. I say this in spite of the fact that here and there throughout the country active steps have been taken in the right direction properly to deal with this problem.

\*Read at the 29th annual meeting of the North Dakota State Medical Association at Devils Lake, May 10 and 11, 1916.

If progress is to be made along this line, many radical changes must be made in the manner in which the State cares for its insane. It is a sad commentary upon our social conditions to be obliged to admit that many acute cases of violent insanity which fall to the State's care are received and kept frequently for a considerable period of time in a prison cell. There is one State in which the public does not recognize an insane person as a sick person, and there are fourteen States in which insane patients are held for long periods of time in jails and almshouses; and, furthermore, there is not a State in the Union which has adequate facilities for housing its insane, and there is not one single State which is doing all that could be done to help this unfortunate class of beings.

The treatment of the insane in State institutions has always been inadequate, and the care of the patients largely custodial. In recent years, however, every effort has been made to employ all of the modern therapeutic measures of a general hospital. Too much emphasis cannot be placed upon the fact that the prognosis of insanity is not as bad as the hospital records would indicate, and is greatly affected by lack of proper apparatus and therapeutic facilities.

The greatest step in the advancement of the care of the insane has been the introduction of the psychopathic hospital, for, if we hope to make much progress in the reduction of the number of insane, the start must be made with the earliest manifestation of the disease. Up to date no specific histological change has been found satisfactorily to explain the psychic symptoms of insanity. Psychology is assuming increasing importance in the study of insanity. It is beginning to be more and more recognized that the studies of the normal mental processes should be applied to investigations of morbid mental states since Kraepelin first called attention to the importance of those principles as applied to insanity. Farrer says that the alive brain *must* be studied, for the dead brain cannot show evidences of morbid thought which existed during life.

The prevention of insanity seems to be offering more in our present knowledge of the subject towards the relief of the situation than any other feature of this problem. The members of the medical profession are, or should be, interested in the matter, and results are to be achieved in several ways. The vast saving to the State which accrues from measures to prevent insanity must be emphasized. The enormous advantages

resulting from the treatment of incipient cases from an economic, as well as a humanitarian standpoint must be recognized.

The significance of alcohol, syphilis, and heredity should be fully demonstrated. The study of educational measures in regard to children; the exploitation of the evils of procreation among the defectives; the early recognition of the neuro-pathic character; and the value of studies in eugenics should receive more attention, and a better understanding on the part of the medical profession of the mental and nervous manifestations would be had if a more thorough course were given in our medical schools.

For a great many years there was very much discussion, not a little contention, and a great deal of cussing between the alienists and the gynecologists as to the relation that exists between pelvic disease and insanity. The alienists contended that insanity is a nervous trouble and never produced by disease outside of the nervous system, while a certain class of gynecologists contended that almost all mental disease in women not due to gross brain pathology, is due to disease of the generative organs. For a long time there was little disposition on either side to make any concessions, but in more recent years both have had more rational views on the subject, and the gynecologists are more conservative, while those who are in charge of the insane recognize that there is a marked relation existing between pelvic disease and mental disturbance. It becomes a self-evident fact that such is the case when one sees the frequency with which nervous manifestations are demonstrated during the menstrual function, at the menopause, and in the pregnant state. These great functional activities undoubtedly affect the nervous system. A great many of the attacks in neuroses, such as epilepsy, hystero-epilepsy, and insanity, appear only at the menstrual period, and insanity frequently occurs at the transition from girlhood into womanhood. If insanity occurs during gestation it usually occurs at each succeeding pregnancy, and postpuerperal infection results in insanity out of all proportion to other infections. Scientific investigation shows conclusively that the recovery of many insane women suffering from gross pathological pelvic conditions is very greatly retarded by such disease conditions, and that many cases are found in every hospital for the insane whose mental condition is caused by pelvic disease or is made worse because of the existence of such abnor-

mality. I am satisfied that an insane woman suffering from infected tubes, ovaries, displacement, or lacerated cervix, should have proper treatment for the same; and, while it may not restore them to normal mentality, it would lessen the intensity of the condition that is necessarily prolonged by this existing pelvic disease. Observation and analogy show that women suffering from pathological pelvic conditions who have delusions or hallucinations directed to the generative organs or whose minds dwell on sexual matters or who have been suffering from the insanity of gestation, will, in all probability, be greatly benefited and possibly cured by overcoming the abnormal pelvic condition. Now, I do not want to be misunderstood in this matter. I do not believe that every insane woman who has pelvic disease is insane because of, or on account of, the pelvic trouble, or that curing the pelvic disease will cure the insanity; but I do believe that there are a sufficient number so afflicted that may be cured or so much benefited that, as a humanitarian procedure, every insane woman should receive such treatment as will eliminate pelvic disease as a probable cause or excitant. In considering the possibilities of these cases too much stress cannot be laid on the fact that the patient is not the one who should diagnose the condition, many grievous mistakes being made by the physician letting himself be governed by the statement of the patient when it may simply represent a delusion of a disordered mind; and I make a conservative statement when I say that there are probably as many insane and defective delinquents outside the institutions as are under public care. Only absolute certainty in diagnosis justifies surgical intervention in mental cases.

The medical profession should have more than a superficial knowledge about mental and nervous diseases, and should be able to advise and assist those in danger of nervous and mental disorders. They should co-operate with the state hospitals in the caring for the insane, and assist the many who are discharged as cured or improved so that relapses due to avoidable and remediable causes may be prevented. They should enlighten the public regarding all phases of mental disorder and the care of the insane, so that it may sooner abandon the semisuperstitious, if not ignorant, belief that mental disease is a disgrace and that commitment to a hospital for the insane stigmatizes the patient and his relatives. In other words, they should impress upon the public that the insane are sick people, not crim-

inals, and that they must be given the benefits of prompt and intelligent treatment if the many curable cases are not to be deprived of their rightful chance of recovery. They must recognize the danger of heredity, alcohol, and syphilis, and that the only hope of lessening the number of insane is in the early segregation of those in whom permanent recovery is not to be expected, and also in immediate segregation, sterilization, and therapeutic measures for the acute maniacal cases in whom permanent or temporary recovery is expected. Marriage laws are tommyrot, and do nothing but add illegitimacy to degeneracy, and do not reach the class who should be restricted.

With the general practitioner let me leave this thought, that most of the violent demonstrations of the acute cases are added to very materially by autotoxemia and that the use of opiates should be secondary to eliminative treatment and should be given only as a last resort in quieting the individual. Hot sheet packs in the home with thorough elimination would frequently result in the patient not being committed.

The work of prevention of insanity should not, and can not, be thrown entirely on the State. Without the aid of the medical profession little headway would be gained. The acts of the profession and the State must always rest upon public opinion, and intelligent public opinion can have its foundation only in accurate knowledge. The following suggestions have been presented by the National Committee on Mental Hygiene.

Let everyone become informed as to the causes of mental disease, and make those facts known to others.

Let each lead a hygienic life, physically, mentally and morally.

Let all speak of insanity as a disease, not as a crime. No family should feel disgraced because some member becomes insane.

If a relative, friend, or acquaintance seems to be in poor health physically or mentally, advise him of the value of prompt medical care.

When philanthropists and others interested are asking for improved facilities for the detection and preventive treatment of insanity, let every intelligent person lend all the aid possible.

#### THE DEFECTIVE DELINQUENT

A question of considerable moment at the present time concerns the methods by which we can dispose of the defective delinquents. Thus far nearly every State in the Union that has undertaken to deal with this problem, has, I believe, started at the wrong end. They have built insti-



tutions for the feeble-minded as schools for little children with the idea that, with proper instruction, training, and education along certain lines, their latent faculties might be developed to a point where they might be capable of self-control and self-support. These hopes have invariably been disappointing, and we no longer believe that a truly feeble-minded child can be cured, for it is useless to try to develop a latent mentality that does not exist. The only way in which results can be obtained will be by:

Securing legislation whereby institutions for the feeble-minded shall hold their inmates by the same authority under which insane patients are held,—that is, by legal commitment. Insane patients are committed to the hospitals, and are held as long as the public safety demands without the consent of parents or relatives; and feeble-minded patients should be committed and held in like manner.

Legislation should be secured whereby whenever inmates of institutions for other classes are found to be feeble-minded, they may be kept permanently in public care.

Provision should be made by law converting existing institutions which are not serving the purpose for which they were intended, into state institutions for defective delinquents.

We should undertake a comprehensive campaign for the care of all feeble-minded girls of child-bearing age because the feeble-minded woman is more dangerous to society than the feeble-minded man. It has been estimated that she is three times more likely to find a mate than the man. If society would take care of the feeble-minded girls of child-bearing age, we would soon see a marked decrease in the number of defective delinquents; and legislation should be obtained that would make all institutions for the feeble-minded cease to receive girls under twelve and boys of any age until every feeble-minded girl of child-bearing age was provided for.

The feeble-minded girl of sixteen is as innocent, as helpless, and as child-like as her normal sister of half the age, and is justly entitled to the same protection and regard as the little girl of similar mentality. Yet she is without protection and is pursued and hunted by evil-minded or thoughtless men as ruthlessly as a rabbit. Her innocence, helplessness, and ignorance are the means of her undoing, and when in her simplicity she is led into vice she is cast out and made the sport and victim of reckless and vicious men, and

then she wreaks a dreadful vengeance in retribution upon society by spreading the infection of disease and vice.

Society holds her responsible when she should not be, and she is disciplined, punished, exhorted, and prayed over in an utterly futile effort to develop what is not in her, and then is sent back in the community to be exposed to fresh temptation, abuse, and viciousness, and to breed a multiplying progeny of her own sort that with her finally gain the ranks of the great army of prostitutes, seventy-five to eighty per cent of whom are feeble-minded.

We should all undertake a vigorous campaign throughout the country for increased provision for the care of this class. Compared with other menaces, I think it is overshadowing all else. The integrity of the home and the moulding of the generations to come are in the balance, and it behooves all acquainted with the situation to do their individual best to eliminate the undesirables from society and protect those yet unborn.

The first place that defective delinquency is seen is in the school-room. Teachers should be instructed to report such cases, and they should be kept under supervision. It should be determined whether the condition was remedial or congenital, and, if congenital, they should be eliminated from the normal, and later rendered non-procreative. If the physicians of the state would lend their aid, it would be a short time until a noticeable decrease would be apparent, and they should use their efforts in recommending early commitment of mental cases to the state hospital, instead of letting them go to sanitariums, where charges are so high that about the time some help might be expected the funds of the relatives are exhausted, and the patients are returned to their homes, when they are finally sent to the state hospital, and little or no help is to be expected.

While it is seldom safe to prophesy, there are good reasons to hope for a decrease in insanity in the coming years. Many forces are at work which make for temperance, morality, and intelligent and hygienic living, and these things should bring about in time a better average condition of both physical and mental health.

#### DISCUSSION

DR. CHARLES L. GREENE (St. Paul): I feel that I ought not to discuss something I know nothing about. I belong to that class of medical men who need more information on this head. I was extremely interested in the paper and its method of presentation, and the forcible way in which the very practical needs of the

subject were set forth, and I did want to ask one question. I understood the doctor to say that within the last year several cases of pneumonia, several cases of typhoid had been committed under a diagnosis of insanity—is that correct?

DR. HOTCHKISS: That is correct.

DR. GREENE: It aroused my curiosity as to the question of marked Bright's disease—whether from time to time the doctor has or has not received patients with marked Bright's disease who proved to be suffering from temporary insanity due to renal inadequacy. It has seemed to me such cases must occur quite frequently, judging by our ordinary clinical observations of such cases. I would really like to put the question if it is profitable.

DR. A. R. F. WYLIE (Grafton): I might say my observation has referred especially to the opposition of friends and relatives to sending their insane children to the hospital for the insane. They seem to feel and think that if they are not wild and do not kick over the furniture and tear their clothes and so on, and do not threaten to injure somebody, they are not fit subjects for the hospital for the insane; and they seem to feel that my institution is especially desirable in the minor cases; and therefore it is especially the demented cases they want to send to me. Of course our institution up there is established for the care and admission of the feeble-minded and the epileptic, and consequently we have no legal authority to take such cases, and I am continually struggling against the admission of such patients. Again, of course, our institution has arranged to care for the ones that we are particularly allowed to take, and we are not prepared to care for those patients in the way they should be taken care of.

As for the control of the feeble-minded: of course we all know more or less about that, and the method of control at present is of course the segregation in institutions. The other means of control by sterilization and marriage law is good and advisable probably, but at the same time it can only be of small moment because we cannot apply it generally.

The doctor spoke about the idea of committing the feeble-minded to the institution. Of course, he does not see that exactly from the standpoint that we do, from his care of the insane. The law of North Dakota was amended some years ago, permitting the commitment of the feeble-minded to the institution by the authority of the Board of Insanity of the county, and by the same routine that the patients are committed to the hospital for the insane. That has been in operation for some four years now, I think, and during that time we have received only a comparatively few.

There seems to be quite an opposition, or a hesitancy at least, on the part of the people in the communities to make the proper complaint so as to get these papers issued and the proceedings put through. We have had a number of instances in our institution life where it would have been very desirable that this should have been done, but the people in the communities hesitated to make the complaint, and of course the authorities could not proceed to have the complaint made, and it has resulted in numerous instances in the girls finally coming out in society and finally mar-

rying, and I suppose giving birth to numerous defectives.

I have never favored entirely the idea of committing all feeble-minded to the institution, simply because of the opposition of the parents and relatives to such a procedure, because, if we had to commit all of the feeble-minded to the institution, there would be lots and lots of instances in which we would not get these children. Parents often think a great deal more of their defective children than of their normal children, and if in bringing them to the institution they felt they were losing control of them, of course they would not bring them to us; and they are properly taken care of in their homes, that is, to the extent that society does not enforce the commitment, so it would result in many instances in our not getting those children in the institution, and consequently the institution would not be able to do for the feeble-minded what it is established and prepared to do; and there is that situation to be considered, so the present condition in this state is this: we have the machinery prepared to commit defectives to the institution, but we still have the voluntary commitment, that is, the parent making application to me, and I am able to receive the patient on that application. We also have the law on the statute book, that no patient is to be discharged except upon the recommendation of the superintendent of the institution, but the lawyers I have consulted on that proposition say that they do not think that possibly would hold water in the courts, that is, when a child is sent to me by voluntary commitment, so as a result, in the actual practice of retaining the patient in the institution, that is, these voluntarily committed patients, it is a question of moral suasion over the parents in retaining them and holding them.

DR. HOTCHKISS (closing): It was my intention in writing the paper to place it plainly before the people where this condition was coming from, and I am satisfied that the reason so many defective delinquents are running loose is merely because of the lukewarmness on the part of those who should be more interested. This idea of being afraid of public opinion is our principal trouble. We have the same thing in sterilization in the institution for the insane. We are sterilizing every day, but we are not doing it roughshod and stirring up antagonism. It is usually presented, that is, if they are temporarily there and going home, and we make it a test of one's judgment whether he ought to go home or not, whether he will permit this operation; and usually when it is explained to him and the benefits he will obtain from it, as well as the possibilities he will be escaping, he asks for it. If we cannot get the patient's permission, we try to get that of the relatives, and of course if we cannot get either the patient will have to go, but we make a pretty strenuous effort. The idea I tried to advance was, that these feeble-minded should be segregated, whether the people like it or not, and from a sociological, as well as an economical, standpoint, we cannot get away from it much longer. Everybody is complaining about the amount of money it is costing, and the increased expense is piling up; and when you size up some of these families, it is not remarkable. I have six members of one family in the State Hospital for the Insane. They have thirty-seven children, and half of those children are married.

It is going to take half an institution for this family, but, as Dr. Wylie says, the relatives are a great many times showering more affection on the defective ones than on their normal children, but at the same time that child should not be a menace to society.

I have felt, in looking over the reports made by the different committees, that the feeble-minded problem must eventually become national. I cannot see any way out of it, and I believe it will be taken up that

way eventually, but if they go on much longer as we are we shall have fewer people outside than there are in the institution.

Answering the doctor's question in reference to nephritic conditions, I will say that all of the cases of senile dementia have defective kidney functions; we have not gone into it as extensively as we might, but a large number of these cases are troubled with kidney trouble.

## FRACTURES OF THE LEG: END-RESULTS IN ONE HUNDRED CONSECUTIVE CASES\*

By F. E. CLOUGH, M. D., F. A. C. S.

LEAD, SOUTH DAKOTA

Very few articles recently published on the treatment of fractures have attempted to tabulate, with any degree of accuracy, the economic finding in this class of injuries. Most of the series reports in the literature have been obtained either from city hospitals, where it is almost impossible to follow up the patients after their discharge, or from private practice, where the same difficulty is encountered.

My series of cases has occurred amongst underground workers for the Homestake Mining Company, of Lead, S. D., where accurate records are kept of all time lost from work. This is a large gold-mining company, using the so-called "stope method" of mining, and, as the method of mining accounts for many injuries, a brief description of the mining work is not out of place.

A layer of rock seven feet high is blasted out of the bottom of a chamber, perhaps sixty by four hundred feet in size, and hauled away. Successive layers above this are blown down, and left in place until there is a pile of broken rock nearly one hundred feet high. At various places along the bottom of this huge pile men are shovelling the rock into cars. It is the duty of certain men to keep the pile trimmed, so that loose rocks do not roll down and endanger workmen below; but, even with this precaution, rolling rocks cannot be absolutely prevented. For the past two years large acetylene lamps with reflectors have been placed in front of these piles, so that shovelers can now see where they are working, and better avoid danger.

Some of the rocks in these piles are as large as rooms, and some are very small. It can readily be seen that, if a rock were to start rolling at the

top, it would be traveling very rapidly when the bottom was reached.

For the most part the tissues are not crushed lifeless, as is the case in railroad work; and yet, because of the jagged points on the rocks, the most serious kinds of compound fractures are produced.

Most of the injuries are produced by rocks not over a foot thick, which accounts for the prevalence of fractures of the lower third of the leg, as will hereafter be demonstrated.

This series of one hundred cases was taken consecutively, and no cases happening during this period were omitted, so that a very fair average of broken legs as occurring in mining practice has been tabulated.

TABLE 1. CLASSIFICATION AS TO AGES

19 to 20 years of age.....	3
21 to 30 years of age.....	42
31 to 40 years of age.....	32
41 to 50 years of age.....	13
51 to 60 years of age.....	8
61 to 66 years of age.....	2
Total .....	100

TABLE 2. CHARACTER OF FRACTURES

	Com-minuted	Not Com-minuted	Total
Straight .....	35	35	35
Oblique .....	34	31	65
Simple .....	16	58	74
Compound .....	24	2	26

TABLE 3. LOCATION OF INJURY

Right Leg, 49; Left Leg, 51. Total, 100.

	Leg	Upper Third	Middle Third	Lower Third	Total Each Leg	Total Both Legs
Bone						
Tibia .....	R.	1	1	3	5	9
	L.	2	3	6	11	17
Fibula .....	R.	2	2	17	21	44
	L.	4	1	18	23	
Both Bones ....						
Potts .....	R.	..	..	10	10	15
	L.	..	..	5	5	
Int. Mall. ....	R.	..	..	7	7	12
	L.	..	..	5	5	
Ext. Mall. ....	R.	..	..	1	1	1
	L.	..	..	0	0	
Both Mall. ....	R.	..	..	0	0	2
	L.	..	..	2	2	
Total .....		10	8	82	100	100

\*Read at the 35th annual meeting of the South Dakota State Medical Association at Aberdeen, May 23 and 24, 1916.



TABLE 4. AVERAGE TIME LOST EXPRESSED IN DAYS

	Right Leg	Left Leg	General Average
All cases .....	100½	97	98.6
Tibia .....	98¼	96	97
Fibula .....	49½	54½	52½
Both Bones .....	151½	132.8	141½
Pott's .....	71.8	69.6	71
Int. Mall. ....	48	45.6	46.8
Ext. Mall. ....	49	79	...
Both Mall. ....	...	...	...

TABLE 5. EXTREMES OF TIME IN DAYS

	Shortest Time	Longest Time
Bone .....	69	146
Tibia .....	28	85
Fibula .....	76	335
Both Bones .....	41	127
Pott's .....	18	174*
Int. Mall. ....	100	...
Ext. Mall. ....	52	107**
Both Mall. ....	...	...

\*Fractured astragalus also.

\*\*Fractured metatarsal also.

TABLE 6. AVERAGE TIME LOST ACCORDING TO TYPE OF FRACTURE

	Simple	Simple	Comp.
	71.7	108	163½
All cases .....	71.7	108	163½
Both Bones only..	117½	119.9	168½

It has been computed that the average wage paid to underground workers by the Homestake Mining Company is \$3.25 per day. The Company maintains a fully equipped hospital which renders, free of all costs to each employee and his family, every character of surgical, medical, and obstetric service, so that no employee ever needs to have a doctor's bill for any ailment. In addition, the Company pays \$1,000 a month to a local sickness and health association, to which each employee contributes \$1 monthly. From this fund an injured or sick employee receives \$1 a day while laid off, and \$1,000 in case of death.

Based on the cost of maintaining the hospital department, and the pro rata cost of the "Aid Fund," it has been estimated that for every dollar a workman loses in wages following an injury, the Company spends an equal amount getting him well. It is thus possible to work out, in dollars and cents, the cost of these injuries.

TABLE 7. COST. WAGES, \$3.25 PER DAY

	Average Days	Workman's Wages	Company Cost	Total Cost	Aid Fund	Total Net Cost
All cases, simple..	71.7	\$233	\$233	\$466	\$71	\$395
All cases, comminuted .....	108	351	351	702	108	594
All cases, comp. comminuted ..	163½	531	531	1062	163	899
Both bones, simple	117½	381	381	762	117	645
Both bones, simple comminuted ..	119.9	389	389	778	119	659
Both bones, comp. comminuted ..	168½	547	547	1094	168	926
Both bones, shortest case .....	76	246	246	492	76	416
Both bones, longest case .....	335	1088	1088	2176	335	1841
Average case ..	98.6	320	320	640	98	542

## DEATHS

There were three fatalities in this series, as follows: one from pyemia, one from pulmonary tuberculosis, and one from pneumonia. As there were other factors in two, a brief report of these cases is given.

CASE 27.—J. P., aged 23, received the following injuries: a very bad compound, comminuted fracture of the upper third of the left leg, several fractured ribs, a punctured lung, and numerous bruises. He was in profound shock for two days. A bad infection developed at once, and amputation was advised, but refused until the twelfth day. General pyemia and multiple abscesses developed, and finally a lung abscess appeared. He died on the fifty-fourth day.

CASE 29.—W. N., aged 50, received a comminuted fracture of the lower third of right leg. He had had pulmonary tuberculosis for some time. As the injury was received in the winter, and it was impossible for him to get out of doors, conditions favored the tubercular trouble, so that it advanced very rapidly, death occurring on the thirty-third day.

CASE 42.—C. L., aged 30, received an oblique fracture in the lower third of the right leg. He developed a pneumonia on the second day, and died on the fifth day.

## TREATMENT

Conservative methods have been followed as far as possible in handling these injuries, with the result that but six cases have been operated upon. As two of these six involved amputation following an infection, there were in reality but four cases operated upon to treat the fracture itself. On several occasions we were confronted with the fact that, while waiting for the wounds in compound fractures to heal in order to permit of operative methods on the bone, Nature stepped in and good union was obtained where we were certain that the suppurative process was too great to permit the formation of callus. As a result of that experience we are certain that many cases of delayed union at the end of six or eight weeks, have later become solid by conservative methods as soon as if they had been operated upon when found springy. We are strongly of the opinion that, if repeated efforts are made, the great majority of recent fractures of the leg can be put into line and held there by conservative methods. While we recognize that in united fractures the bone-graft is the ideal method of treating such cases, we cannot fail to emphasize that absolute anatomic reduction is not necessary in recent fractures of the leg, nor do we think the healing process is accelerated by accurate apposition. We consider that, if the fractured ends overlap a third or even a trifle more, a stronger callus is thrown out, and ultimately the callus becomes smoothed down, the

lines of force of the bone become readjusted to new conditions, and, inside of two years, it is impossible to tell by appearances where the fracture occurred, and all the x-ray shows at this late date is a slight thickening of the cortex at the seat of the old injury. We are also of the opinion that it requires as much experience and even greater attention to details, to handle fractures by the conservative method as by the open method.

Right here I would like to quote Dr. Huntington, of San Francisco, one of the leading railroad surgeons of the country, who stated, in an article published last September (1915), in the *Annals of Surgery* that ununited fractures were practically always evidence of the faulty handling of recent fractures.

It must not be forgotten that this series occurred in healthy, well-nourished individuals, which is a factor of great moment in the ultimate results.

The majority of these cases were reduced under ether anesthesia, although some received no anesthetic. As most of these men were dirty when hurt, the legs were washed before applying splints. If a wound was present, it was temporarily covered during the washing process, and then swabbed around the edges either with soap and water or, more recently, with iodine. No appreciable superiority has been seen in methods.

Meddlesome interference with wounds has not been tolerated, and no attempt is made to wash the wound below the surface. Common sense, of course, teaches the removal of any foreign bodies.

From dry-goods stores are obtained, free of cost, pieces of pasteboard about eight by thirty-two inches in size, which come from the center of bolts of dress goods. With a pocket knife, a pair of pasteboards can quickly be cut the shape and size of the foot and leg. These pasteboards, after wetting, can be moulded readily to fit the leg, and, after fastening one on each side with a muslin bandage, they dry into firm, well-moulded troughs. These are cheaper and cleaner to make and hold the fragments in as good position as those made out of plaster of Paris. In dressing a fracture the bandage is removed, the patient turned on one side, the upper pasteboard removed, and clean dressings applied to that part of the leg lying uppermost. After the top pasteboard is again applied, the patient is turned clear over, the opposite pasteboard taken off, and the dressing completed. In this manner the frag-

ments are never moved, and a splint always remains beneath the limb for support. As the swelling goes down these pasteboards are tightened, and, after the leg has reached normal size, or nearly so, they are replaced with an ordinary plaster-of-Paris cast, which remains in situ until good union is secured. This cast is cut open immediately after being put on, and is wrapped with a muslin bandage, in order to allow for any possible swelling and its subsequent bad effects.

Almost without a single exception, every patient has ultimately returned to the same class of work he was doing prior to the receipt of the injury. We have had more trouble in handling the very oblique fractures than any other kind; and, while the anatomic results have not always been what we might have wished for, the functional results have been very satisfactory. Equally troublesome have been those cases involving the upper portion of the leg where union is invariably slow. All these cases came under our care within a few minutes after being injured, and were given immediate attention.

The x-ray was freely used in every case, rarely, however, until after the first reduction had been made. We unhesitatingly say that every fracture should be skiagraphed at some time before solid union has occurred, preferably before a permanent dressing is put on.

With the increase in the number of machines in this state, it is now possible to transport nearly every patient to a machine. You who are not checked up in this work with a skiagram have no idea the peace of mind a picture of good reduction offers, nor what discomfort a picture of poor alignment can give to one's troubled soul.

Tetanus has never occurred in over 30,000 recorded accident cases in our part of the country, hence no antitetanic serum was administered as a prophylactic measure. From a general knowledge of the literature, and from personal letters received from mining surgeons from all parts of the United States, I am unable to find a single recorded case in such injuries, and hence believe that tetanus germs do not live in underground workings, and therefore this complication need not be taken into consideration.

All told, six patients have been operated on for the following reasons:

Non-union .....	2
Inability to reduce .....	2
Amputations following infections...	2

A brief history of the operative cases is given:

CASE 24.—P. L., aged 40.

October 7, 1907, right tibia and fibula, lower third compound, comminuted fracture. October 19, 1907, cast applied. This cast was finally removed after three months' time, when all the wounds had healed, but the fracture was still springy. The patient walked on the leg while in the cast until April 1, when the ends of the bone were drilled. He was again put on his feet, and after four months more the leg was solid. Total time off, 297 days.

CASE 46.—G. S., aged 25. June 6, 1911, the right tibia and fibula, lower third, compound, comminuted fracture, with the bones badly crushed one inch on each side of break. July 29. Cast removed; little union. Reapplied cast. November 24, still springy, bone-ends drilled, walking on leg. January 17, solid union. Total time off, 224 days.

Were these cases to occur in our service now, they would probably afford ideal conditions for a bone graft, which was an unheard of treatment at that time.

CASE 24.—E. P., aged 23. October 17, 1910. Right tibia and fibula, lower third, compound, comminuted fracture, very oblique with many fragments. Impossible to hold up by external splints.

November 18. Loose pieces removed, and tibia nailed with sixpenny nails; loss of pieces shortened the leg three-fourths of an inch; fibula was let alone.

March 21. Went to work with a splendid leg. Total time off, 154 days.

CASE 71.—F. S., aged 30. December 10, 1913. Left tibia and fibula, lower third, compound comminuted fracture with a double fracture of the fibula four inches apart. The fragments overlapped, and were locked in so tight a position that reduction by the closed method was impossible.

December 24. While still suppurating, open operation was performed, and, after reduction, a Lane plate was applied. Union immediately occurred, but a small amount of pus continued to appear.

March 24. The plate was removed, and the suppuration soon ceased. Final result excellent.

Total time off, 196 days.

CASE 27.—(Recorded under deaths.)

CASE 55.—F. S., aged 23. Compound comminuted fracture upper third of both bones of the right leg. Immediate severe infection. Advised amputation, but refused until a week later, when the leg was taken off four inches below the knee. Outlook bad on account of infection. It was necessary to put drainage-tubes into the knee-joint both above and below the knee. At the end of four months the infection had quieted down sufficiently to allow the patient to leave the hospital. An artificial leg was put on later, and he finally returned to work with practically all knee-motion lost.

Total time off, 335 days.

#### CONCLUSIONS

1. The x-ray is absolutely essential to secure first-class results, especially to protect the doctor in a medicolegal way.
2. At least ninety per cent of all fractures of

the leg can be handled by the conservative, non-operative method.

3. Functional results are frequently very satisfactory when anatomic results are not perfect. This should not deter us from securing the best possible anatomic results.

4. Conservative methods require the greatest possible attention to details throughout the entire course of treatment.

5. Many personal opinions are, that operative methods shorten convalescence. Until definite data have proved that point, the percentage of operative cases need not rise from that indication.

6. Do not amputate too soon. Many of these cases looked as though an attempt to save the limbs would be foolish.

#### DISCUSSION

DR. H. T. KENNEY (Pierre): I want to congratulate Dr. Clough on the practicability of his paper. I think we all misjudge our fracture cases, especially as to the length of time these patients are laid up. Those of us who do surgery have a tendency to operate too much. We are not conservative enough. Dr. Clough has shown us in his paper that we should be more conservative, which is very necessary. He has also shown us very clearly that we must tell our patients that it is going to take more time than we have usually told them in the past. We often let them up in four or five weeks, and the time is not enough. They expect to be well in that time, and when they are not they are disappointed.

If you will look over the history of malpractice suits you will see that about ninety-eight per cent of them are due to fractures. Most of them are due to the fact that doctors did not inform their patients as to the end-results of fractures. That is the great trouble. I think we should let them know the time that will be necessary, and also let them know the anatomical condition, and that while the fracture is not perfectly strong, it will give them good use of the limb, and that particular feature should be drilled into them at the time of the fracture.

DR. FRED TREON (Chamberlain): I desire to ask Dr. Clough when he considers a fracture ununited, how long does he let it go?

DR. CLOUGH: I do not know, but I cite one case of four months.

DR. TREON: I had one that was ununited in four months, but got well in five. I had two or three cases, and I wrote to Dr. Mayo with reference to the matter of telling these patients to walk, and he told me to let them walk. I did, and both got well five or six months afterward.

DR. HENRY J. HERMAN (Webster): I would like to ask a question concerning the pasteboard and another one in reference to putting up these fractures.

About thirty years ago a young fellow was brought to me, who was about ten or twelve years of age, and I put an extension bandage on his fractured leg. I do



not understand why an extension bandage would not be an improvement in the treatment of these fractures. This boy was brought in by his father some thirteen miles. I took him into my office, put on an extension bandage, using pasteboard, and this was done, as I have said, about thirty years ago. The father carried the boy home on a load of hay, and on arriving home put the boy in bed, and I did not see him for three weeks. I then put another bandage on, and did not see him for two weeks. This boy is now a banker in Des Moines. He has no limp and no shortening. With this kind of fractures I cannot understand why an extension bandage would not be of benefit. I can understand why pasteboard is a good preparation to use because pasteboard is made of glue and the layers of paper are pressed together. But why would not an extension bandage be an improvement in treating all of these fractures? It looks to me as though you can put an extension bandage on with a fracture below the knee, and the patient get about in five minutes after the bandage is put on, and can walk on it. I have put on such a bandage in a case of fracture below the knee, and allowed the patient to walk on that foot without hurting him a bit. It does not cause any pain. It looks to me that would be a great improvement in the treatment of this kind of fractures.

DR. CLOUGH: What do you mean by extension bandage?

DR. HERMAN: The way I put on an extension bandage is to put a piece of adhesive plaster on each side of the leg, and then incorporate in that a piece of iron like a wagon box around that which will reach four inches below the foot. When you get the leg lined up where you want it, take the adhesive plaster below the foot, say four or five inches, and tie the adhesive plaster tight if you have a fractured bone, and you will still get the leg as long as it should be. You can extend it half an inch longer, and let it remain until all fragments of bone have become lined up. In the case of this young fellow every bit of this bone grew in, the joint formed in, and he has a good arm.

DR. FRED TREON (Chamberlain): I want to thank Dr. Clough for his paper because it comes to us from such a rich field of experience.

For years—in fact, ever since I have lived in South Dakota—I have been acquainted with Dr. Freeman of whom the doctor spoke. I had a case of fracture similar to the usual fractures we see in railroad men, but in this instance the man fell from a derrick a distance of twenty-seven feet, fracturing both bones in both legs. He was a large man, somewhat over six feet in height, and weighed over two hundred pounds. In the fall both limbs struck a bar of iron, breaking both bones in both legs about the middle third. In the left leg we had fairly good success in getting union, and while shortly afterwards we found that in the right leg there was good union, in the left leg there was overriding of the fragments, and we were unable to get union. It was a compound comminuted fracture, and we decided to cut down and operate upon the left leg and put on a plate, which we did, and allowed it to remain for six weeks, when it was taken off.

There is one point the doctor brought out, and that is with reference to the length of time these men are in the hospital. The man whose case I have related was in the hospital nearly five months. The cost to the

company corresponded very well with what the doctor said about the loss of time and the expense. They settled with this man for \$500, and the doctor's bill was \$500, making \$1,000. This man had a good result, although he was sixty years of age.

DR. R. O. WRIGHT (Huron): I should like to say that in dealing with these cases of fracture the time consideration is going to help us more than anything else, and I think all of us must agree with what the essayist said in that respect. The method of putting up a fracture and not disturbing it after the injury appeals to me.

The essayist spoke of not having any case of tetanus following the method which he has adopted in the treatment of fractures. I recall having had a case of tetanus in a child, fourteen years of age, with a fracture of the radius; and while I used iodine on the outside of the wound, I did not inject it into the pin-hole opening, which I should have done, and I had the worst case of tetanus I have ever seen. For fourteen days that child had convulsions, off and on, the convulsions occurring at twenty-minute intervals. The child, however, finally recovered, and I obtained a good result as regards the fracture.

DR. C. V. TEMPLETON (Woonsocket): I have been disturbed a little bit by reason of the fact that I have had an opportunity to deal with a fracture a little different from what I have been accustomed to do. I have the ordinary practice in a farming section of the country. I have had about the usual number of cases of fractures, very few of them compound or comminuted; and I have congratulated myself on having obtained pretty good results in all of them, but a short time ago a farmer brought his boy to me, who was about ten or twelve years of age. He had fallen off a plow, breaking both bones of the forearm half way between the wrist and elbow. I put him under an anesthetic, straightened the arm, and, so far as I could determine by the usual manipulation, I had a perfect result from the standpoint of anatomical adjustment. I could feel the arm was not thick for a boy of that age. I could run my hand along to see that I had the bones in line. I thought I had. I had the father do the same thing, and I thought I had as good a result as any man could get. But prior to this time I never subjected cases of that kind to the x-ray. I did not have an opportunity to do so; I did not have an x-ray apparatus. Having recently installed an x-ray machine I took a skiagraph of that arm and found, instead of having the splendid alignment which I thought I had, that one bone was pretty well adjusted, but the other was off. I could not tell from the skiagraph whether in one bone it was a square or an oblique fracture, but, if it is not an oblique fracture, one of the bones stands half way out of alignment. It does not override. The question arose in my mind when I discovered that, whether I ought to disturb it. I took a conservative course, and let it alone, because I said to myself that if I had not had the x-ray I would not have known it. The question occurred to me whether I should put the boy under an anesthetic and undertake to put the bones in perfect alignment. I could have found it by using the fluoroscope at the time, and before I bandaged the arm the second time.

I cite the case to learn the judgment of Dr. Clough,

or of any one else, as to what ought to have been done in that particular instance.

DR. H. J. G. KOOPS (Scotland): This is quite an interesting subject, and personally I am very much obliged to Dr. Clough for the tables he has presented. I think they will be a help to us sometimes with our patients. If we can have these tables printed and show them to our patients and say to them, "This is what you can expect," it would help us very materially, particularly in institutions and industries where we have a good deal of this kind of work to do. Those who are railroad surgeons can make use of these tables to great advantage in showing them to claim-agents. However, in making a prognosis to patients I think we will need to be a little circumspect in stating the time they are likely to be laid up. We should put the time as far off as possible.

I have had a rather unique experience recently that knocked me off my pins in my anticipation of the outcome of certain fractures I had to deal with. They were cases that occurred the 17th of January of this year in a railroad wreck, where a caboose dropped over a bridge, injuring eight or ten people. All received fractures of the upper portion of the femur just below the great trochanter. Two of the injured happened to be father and son, and received the same fracture in the same place just below the great trochanter of the right femur. One man was about thirty-eight years of age, and another sixty-five. I took care of them the first day, putting on a temporary dressing, and the next day I put on another temporary but more permanent dressing with a Buck's extension. The older man received a great many other bruises. He was in shock, and remained in shock up to the second day. There were lacerations and bruises all over his thigh, and he was black and blue over one-third of the body. It looked like a hopeless case because he had a bad heart, was asthmatic, and subject to chronic bronchitis, so you can see the combination I had to deal with. With assistance I put up the legs without an anesthetic as best I knew how, but under protest on the part of the patients because they intimated to me they had their own "bone-setter." However, as the company's division surgeon I was expected to look after them until other arrangements could be made, so I did my duty. Going back the next day I found my extension was taken off; the "bone-setter" had been there. He ridiculed my diagnosis of fracture, and said it was just a dislocation. He had manipulated the leg, and said it was not a fracture, although we were absolutely positive of our diagnosis because there was no question as to crepitus and false motion, and there was more than one-half inch of shortening by measurement. Both of these cases were handled by "bone-setters." They took off the splints and dressings, put on a trough, and handled it every day. They allowed the men to move from their bed every day. They were rubbed and manipulated every day, so that while I continued on the cases, for several reasons I had them give me a written release from any obligation so far as fracture was concerned. They gave me such a release. The upshot of the whole matter was this: In six weeks after the fracture the younger man walked with the aid of one crutch, and he has been walking now four weeks without the assistance of a crutch or cane. The fracture was sustained on the 17th of January of this year. The older man out on

crutches has good callus, and I believe he is going to have good union. I told them it might take three or four or possibly six months before they would be all right. They laughed at me, and said I did not know anything about it. I had no x-ray picture to verify my diagnosis, but there was an enormous callus, some shortening in the leg of the younger fellow, and in the case of the older man there was about two inches of shortening, although he was able to get around.

Now, I am satisfied manipulation of these legs was a good thing. While it is not best probably to put them up in a tight cast, we feel that the period of convalescence is shortened by a little manipulation rather than putting them in a tight cast, because, I believe, we are going to have a longer period of invalidism by allowing them to lie still and simply apply a cast without manipulation.

DR. MORTIMER HERZBERG (Vermilion): The point in Dr. Clough's paper which impressed itself upon me, and which I think should be brought more to our attention, was in connection with what Dr. Bracken had to say this morning, namely, we do not know the economic loss from sickness. We have got a fine tabulation of it in the statistics presented by Dr. Clough. Now, if we could get a series of statistics for the common diseases and their causes, such as Dr. Clough has presented here with reference to fractures, and go before the legislature with the facts, in lieu of wild theories about the prevention of disease, we could accomplish a great deal more than we have been able to do in the past, and do a whole lot more with our health statistics.

Perhaps you know that in the State of South Dakota there are something like 3,500 tubercular people. If we could cut our figures down from 3,500 to 2,000 a year, it would reduce the expense greatly, for the average loss of \$750 a year would be cheap for the average wage-earner in this state. According to plain mathematics the sum of \$1,500,000 every year is spent in the State of South Dakota through sickness which could be largely prevented. There is a great loss to the Homestead Company of South Dakota and to the land in addition through fractures. If we could get a series of figures like Dr. Clough has presented to us for typhoid fever, for tuberculosis, for scarlet fever, and some other preventable diseases, and go before the legislature with them and the public at large, and show that there is an actual cash loss to be sick, we would get some money from the legislature to carry on work for the good of the public.

DR. E. E. KING (Mitchell): I want to emphasize the importance of the use of an anesthetic in the reduction of fractures by reporting one or two cases. One of them was a Colles' fracture. The man refused to take an anesthetic when I wanted him to do so. Without an anesthetic we made an attempt to reduce the fracture, and with the use of the x-ray I thought I had the fracture reduced properly, but I did not, and since that time the man has actually developed a deformity of his wrist, which he shows me once in a while. I feel that we should compel men to take an anesthetic, in order to get proper reduction in these cases of fracture. If they do not take an anesthetic, they are liable to get half way reduction because we have resistance to contend with. And it brings out the point that the x-ray is not a reliable criterion in all cases. Although the x-ray is important and should be used in every case, if



possible, it is not infallible. It is just the same as any other diagnostic instrument: it is an aid to be used along with all other methods we have at our command.

DR. N. K. HOPKINS (Arlington): One point brought out in the paper and discussion which impressed me was the number of deaths in a hundred cases,—three deaths.

I desire to relate a case that came under my observation. It was not so much my case as it was the doctor's whom I assisted. He had been house physician in one of the large hospitals, and in twenty-four cases of delirium tremens complicating fractures, there were twenty-three deaths. I had a case of delirium tremens complicating a fracture in which the other doctor assisted me. Luckily, the patient got well. It seems to me, we should consider the physical condition of the patient in making a prognosis as to what the outcome of the fracture will be, either as to the length of time or the final result.

DR. CLOUGH (closing): This discussion has wandered away from the type of fractures I discussed, and has included the whole realm of fractures. However, there are one or two points I want to bring out which were not mentioned.

The experience I have had in connection with fractures has taught me never to put up a fracture of one leg unless you have the other leg stripped in front of you. If you have a case of fracture to deal with in a man who has bow legs and attempt to put up one straight and leave him a bow leg on the other side, it will be the quickest method I know of for bringing about a malpractice suit. It is very essential to have both legs exposed and compared.

In the treatment of these fractures the thing that makes me sore is, when I talk to practitioners, that they have not got conviction enough to know that when they put their fractures up they should let them alone. Every time you see a practitioner monkeying around and changing the dressings, padding a little here and a little there, you may know it is absolutely unnecessary. Of course, in the case of compound fractures you have to do it, but a simple fracture can be put up and left alone. If the dressing does not slip, let it stay. If you want to touch them once in two weeks, do it.

The question has been asked, how long does it take

a fracture that is ununited to become united? I do not know, but we do know that many of them will become united if we wait a while.

I became very enthusiastic over the operative treatment of fractures at one time. I went to see Lane in London, and I saw some of the work done with Lane plates for single fractures. I asked one of the assistants in Lane's clinic, a man who does a great deal of this work, whether they ever took out the plates and he replied, "Oh, yes, Mr. Lane does not do it, but we do it because we have not mastered Mr. Lane's technic."

With reference to extension: I will say that Bardenheuer, of Germany, is a great exponent of extension. He puts on extension in cases of single fractures of the extremity. He takes a fracture of the humerus, for instance, puts on a large apparatus which extends out here (indicating), and with a weight hanging over there (indicating). He does the same thing in cases of fracture of the forearm. We can put up fractured femurs with extension because we have to, but it is unnecessary to put extension on the majority of fractures of the leg. Do not think for a minute that we keep these patients in bed as long as the figures state. Just as soon as patients can get up and around they do so. The majority of these patients with ordinary fractures are up on crutches in nine or ten days.

As to the anesthetic proposition: it depends largely upon the patient. If you know the patient pretty well, and are able to tell at a glance what kind of fracture you have to deal with, in a second's manipulation you can get the fracture in line, so what is the use of giving an anesthetic?

Another proposition is with reference to the reliability of the x-ray. It has been said in this discussion that the x-ray is no criterion. That is an absolutely false statement. It is not the x-ray that is at fault, but it is the man who interprets the picture. It takes just as much skill to interpret an x-ray picture as it does to take care of a man's leg when it is fractured. If you take an x-ray picture of a broken leg in two planes, one taken through one way and another through another way, you know absolutely whether the fracture is in line or not. The x-ray picture will show you clearly, if it is taken right and interpreted correctly, whether the fracture is lined up or not.

## THE FAT CONTENT OF SPUTUM\*

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### I INTRODUCTION

In this paper, when speaking of the fat content, lipins or a member of the group is understood, namely,—simple fats; fatty acids, saturated or unsaturated; cholesterol; myelins.

Two years ago one of us, while performing the routine examinations on sputum, reasoned that the fat content in various kinds of sputum would

show a marked variation, and that the amount found would probably be dependent upon the injurious agent and the injury produced. With this in mind, several rough observations were made on tuberculous sputum. A modified Babcock's tube was used, and the same method pursued as in the determination of the fat content in skim milk. The few observations made at that time, by means of the modified Babcock test and of the fat-staining properties of Sudan III, led us to believe that a simple, practical, labor-

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atory method could be devised which would differentiate the sputum in pulmonary tuberculosis from that found in acute infections. Because of the pressure of routine work and the scant amount of the sputum sample sent into the Public Health Laboratory for examination, few observations were made for several months. Recently, however, with increased facilities and workers, the subject has been taken up with renewed interest.

The object of presenting a paper on this subject to you at this time is a selfish one. We have little that is new to offer and much to ask from you. If observations along these lines are to mean anything, you can readily see that they must cover a large number of cases extending over a period of at least two years, since many cases will have to be examined necessarily many times and by several methods. For this reason I am here to ask for your co-operation. This co-operation can be manifested by you by voluntarily becoming a co-worker in this subject. At present, we ask that you send in a complete history with each sputum; that you exert your influence to have all sputum containers full; and that you send us repeated specimens when so requested. In this way the workers in your State Laboratories may be able to report to you a year hence.

On this problem, the State Medical Laboratories are well represented. Dean French of the Department of Anatomy and Histology is especially interested in the cellular elements of the inflammatory exudate found in sputa. The Department of Physiology is represented by Doctor King, who will make a special study of the fat splitting ferments. Doctor Hanford, Chemist and Assistant Bacteriologist of the State Public Health Laboratories, will make the chemical and bacteriological examinations.

The Department of Pathology is represented by the speaker, who will give his attention to the various microchemical reactions. In this way the problem will be attacked simultaneously from several points of view, and the mutual aid to be gained from the co-operation of the several workers cannot be ignored.

## II PATHOLOGIC BASIS FOR THE WORK

In order to discuss the fat found in sputum, it may be well to recall what we know about fat in the body. For instance, a large proportion of the fat comes from the fat taken in the food. Thus the body fat is not of constant composition, but varies greatly with age and is apparently

more or less modified by diet. Fat is sometimes formed in the body from carbohydrates, but probably never from proteins. Fat is always utilized and transported in the form of its two constituents, fatty acids or soap and glycerol, which are diffusible and soluble. It enters and leaves the cells in this condition, being split or combined, as may be necessary to produce equilibrium by the action of lipase, the fat-splitting and synthesizing enzyme or ferment, which is present within the cells and in the blood and lymph. Under normal conditions there is little free visible fat in the cells of parenchymatous organs, because it is largely used up through oxidation of the glycerol and fatty acids by the action of the intracellular oxidases. Where there is abundant lipase and but little oxidative activity, as in the case of areolar fat tissue, fat accumulates in large amounts. When for any reason the oxidative power of the parenchymatous organs is reduced, fat droplets accumulate in them, as they do in the fat depots normally.

When fat droplets fuse together in large droplets in or between cells which are apparently normal, we get the picture of a typical fatty infiltration. This infiltration of an organ with fat depends usually upon decreased oxidation due to lack of either oxygen or hemoglobin in the blood, and, unless extreme, is not associated with degenerative changes in the cell. Fatty infiltration is common in the liver, heart, and pancreas; on the other hand, infiltration of lungs and kidney with fat does not occur.

In contradiction to the visible or labile fat found in fatty infiltration, nearly every cell contains invisible stabile fat-like substances varying from five to twenty per cent of the total dry weight of the organ. This usually is held in such a form that it cannot be stained by any stains available for the purpose. Furthermore, the same resistance is shown by part of the fat to extraction with ether. Thus the greatest portion is held in firm chemical combination, probably with amino-acids, and becomes visible only when pathological changes in the cells result in decomposition of the cell protein by autolysis.<sup>1</sup> Such a state of affairs exists when cells die rapidly as the result of strong injurious agents or when blood is quickly shut off from an area, as in a rapidly forming infarct.

Fat is found also in cells in the process of so-called fatty degeneration. This process depends upon the slow death of the cell. The cell which has been injured and is slowly dying has its metabolism so altered that it is unable to utilize

the small discrete fat droplets brought to it by the blood. As soon as death occurs, autolysis may liberate a portion of the invisible fat, and thus the fat content of the cell is apparently increased by more of the fat becoming stainable.

With the above explanation of fatty infiltration and degeneration, and cell-autolysis resulting in the liberation of invisible fat, one is inclined to believe that the fat content in various lesions will vary with the injurious agent.

In typhoid pneumonia and pneumococcic pneumonia where necrosis of lung tissue is rare, the fat content of the sputum probably is not excessive. In abscess of the lung and other acute infections, the cells die rapidly, and the fat content should consist mostly of liberated invisible fat. In pulmonary tuberculosis, on the other hand, the cells die slowly. As a result of fatty degeneration and autolysis, the fat content should exceed that found in acute inflammatory processes.

### III PREVIOUS WORK ON FAT CONTENT

The subject of lipins, as related to various organs, has been an interesting and fruitful field for many workers. To these men, all who would do work in this field are greatly indebted. So it is in this problem. We only hope to apply to it some of the fundamentals worked out by others.

In the field of chemical analysis of dry sputum we are especially obligated to Bokay<sup>2</sup>. His table, which follows, gives the proportion of some of the organic constituents of sputum in parts per thousand as he found them in acute inflammatory processes and in various stages of tuberculosis.

	Bronchitis in Typhoid	Phthisis Early in Apex	Phthisis Cavities	Phthisis Advanced	Phthisis Advanced
Fatty acids as fat..	0.224	0.462	2.468	3.468	9.725
Free fatty acids..	trace	0.521	0.370	0.307	0.902
Soaps .....	traces	0.430	0.537	0.516	3.973
Cholesterol .....	traces	1.617	0.172	1.160	0.141

Bullard,<sup>3</sup> in the *Journal of Medical Research*, explains methods in detail for microscopical demonstration of fats in tissue sections.

For a careful examination of the unsaturated fatty acid content in pneumonia exudates, Christian's<sup>4</sup> article stands alone.

In order to study the lipins and their various constituents, it is necessary to know something concerning their microchemical reactions: Bullard<sup>3</sup> believes that Herzheimer's solution of Scharlach R is the best stain for demonstration of all sorts of fats in tissues; Christian<sup>4</sup> uses osmium tetroxide for the staining of oleic and

other unsaturated fatty acids. Fatty acids and phosphated lipoids are stained blue with Nile blue sulphate while neutral fats are stained red by the oxazone base, Smith<sup>5</sup>; Benda<sup>6</sup>, by using the reaction of Fischler, stains fatty acids and soaps by copper acetate, which forms a green copper salt; cholesterol stains differently from neutral fats by being more yellow than red with Sudan III, and grayish rather than black with osmic a. Wells<sup>7</sup>.

Lipoids can be differentiated from neutral fats by Ciaccio's<sup>8</sup> method. The preliminary treatment is with bichromate, which renders the lipoids insoluble. The tissues are then hardened and imbedded by the usual method, which removes the unchromated fats. The lipoids left behind are stainable by Sudan III. This, therefore, Bell<sup>9</sup> believes, stains the lipoids in sufficient amount to account for all the so-called invisible fat, which seemed to be largely lipoidal.

Kaiserling and Örgler<sup>7</sup> believe that myelins, which probably are a mixture of lipins, the cholesterol esters being prominent, are stained by osmic acid, but not by Sudan III. When viewed through Nicoll prisms they show as fluid, crystalline, anisotropic forms.

Thus the chemical analysis, the microchemical reactions of fats, and the application of these reactions have been worked out in fresh and fixed tissue preparations and in certain types of exudates.

Recently, Barbaro,<sup>10</sup> in a preliminary article on the fatty substances of sputum in pulmonary tuberculosis, offered the opinion that there is a noteworthy augmentation of fatty substances, especially of common fats.

### IV RESULTS OF ONE HUNDRED AND FIFTY CONSECUTIVE SPUTUM EXAMINATIONS

The following tables, which are the results of the crude examination of one hundred and fifty sputums, will give you an idea of the future possibilities which this problem presents. As mentioned before, they should not be taken too seriously, as the number of cases is too small, and they have not been under observation long enough to prove or disprove anything.

Table I fails to show, in the twenty-six specimens in which the tubercle bacilli were found, that three did not show an increased fat content. In specimen No. 7,043, the duration of which is three months, the sputum was collected during a hemorrhage. In specimen No. 7,054, of two months' duration, the sputum was described as

thin and watery. The failure to secure an increased amount of fat in No. 7,043 and No. 7,054 can be thus accounted for. However, the tubercle bacilli were very numerous in specimen No. 7,087, the duration of which is eight months.

Table I

Result of the Examination of One Hundred Fifty Sputa

Number examined	Clinical diagnosis	Tubercle B. First Ex.	Fat content increased
8	Pneumonia .....	0	1
8	Chr. Bronchitis.....	3	4
1	Abscess lung.....	0	0
2	Asthma .....	0	0
16	A. Bronchitis.....	0	0
1	Delayed Res.....	0	1
36	Tuberculosis— Under 4 mo.....	10	21
54	Tuberculosis— 4 mo.—11 years.....	11	27
24	.....	2	3
150	Various .....	26	57

Several specimens showed an increased fat content, which microscopically were negative for the tubercle bacilli. We may find later that the fat content of tuberculous sputum is increased before the tubercle bacilli are found, and that the tuberculous process is not healed until the fat content decreases. Tubercle bacilli, however, had been found from one month to one year previously in three cases, Nos. 6,877, 6,902, and 7,058. Clinically, they had been reported as improving pulmonary tuberculosis.

An interesting observation was made in specimen No. 7,090. The fat content was increased. No tubercle bacilli were found. The examination of the fresh specimen showed a large quantity of food material. The increased fat content here probably was due to the fat in the food.

Table II

Result of First and Second Microscopic Examination of Eight Sputa

Duration	First micro.	Second micro.	Fat content
6 months .....	—	—	+
2 months .....	—	+	+
6 months .....	—	—	—
3 weeks .....	—	—	—
2 months .....	—	+	+
3 years .....	+	—	+
3 months .....	—	—	+
6 months .....	—	—	+
	1	2	6

The interval between the first and second microscopic examination was from several days to as many weeks. It is quite possible that the

number of positives will increase with more examinations. Table II represents all specimens examined more than once.

In conclusion, let me say: If you are impressed with the possibilities which this paper opens, please show that interest by co-operating with the workers on this problem by sending generous samples to the North Dakota State Public Health Laboratories.

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## DISCUSSION

DR. L. D. BRISTOL (University): I have been following with a great deal of interest this important work, and I can only emphasize what Dr. Cox has said as to your own co-operation with the men carrying this work on, in order that they may arrive at some definite conclusions later on as to the value of this test. I think you will all agree that any test which assists us in making the earlier diagnosis of pulmonary tuberculosis is a valuable one. It would seem, so far as the work has gone, that this test will assist us in arriving at an earlier diagnosis of pulmonary tuberculosis. Men are advising at the present time—in fact, Dr. Longstreet Taylor, of St. Paul, with whom I have been associated in antituberculosis work for some time, is now advising that a physician make a diagnosis of pulmonary tuberculosis on the toxic symptoms, and not wait until the physical signs develop in the typical way. So I think we may say, if we can diagnose tuberculosis before the bacilli tuberculosis appear in the sputum, we have an additional measure of great importance, and it would seem that perhaps this fat-content test would be one of the methods by which we could arrive at some definite conclusion before we are able to find tubercular bacilli.

I have been interested especially in this problem from two standpoints, not only the standpoint of being able to make an earlier diagnosis, but also from the standpoint of the explanation of this condition. May it not be possible that there is a much larger elimination of fat from the lung in so-called pre-tuberculous cases? We recognize fully that the best treatment for tuberculosis is to put on fat through the influence of rest and forced feeding and fresh air. So it would seem that it may be the rapid elimination of fat from the body, perhaps largely through the lungs and through the sputum, that may so lower the resistance of the body that the bacilli tuberculosis have a much better chance to get in their work. And so that is one of the standpoints from which we may look at the problem. The other standpoint, of course, is, that it is simply a result of the tuberculous process itself.



# THE JOURNAL-LANCET

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## "THE SURGEONS' RING"

Under the above title the *Tribune* of Bismarck, North Dakota, in its issue of August 15th comments upon groups of physicians and surgeons who play into each other's hands for obtaining more fees than would be possible in the legitimate course of ordinary practice. This, of course, is an old and oft-repeated criticism of physicians who are combined in suites of offices, and in a few instances the probabilities are that there is much truth in the assertion that they play into each other's hands. It suggests to the critic that it means fee-splitting and that it means an understanding with the druggists, oculists, and opticians; and the *Tribune* editorial goes on to say that, although the habit and practice of fee-splitting in general has been condemned by the American Medical Association, it remains prevalent, and is so deeply ingrained that it will take more than a generation to uproot it entirely.

It is impossible to determine just how far fee-splitting is carried, or just how far groups of physicians turn their cases over from one to the other. There is no dispute but that a number of well-trained men, men who are honest and are endeavoring to do the best they can for their patients, can do more in groups than they can singly; and there are many illustrations of the

force of this statement. There must be specialists in all departments of medicine and surgery, and the people are beginning to realize this; but combinations not infrequently abuse their opportunities, and when it is done they place themselves among the class of men who are looked upon as charlatans. There is no doubt in the minds of thinking men that the physicians as a class are growing better, not only in their methods, but in their technic, and in their treatment of their patients, both from the scientific side and from the commercial side, and THE JOURNAL-LANCET ventures to assert that there is less fee-splitting than there was five years ago—so much less that it is often remarked upon. In some communities the practice undoubtedly persists, but in the larger cities it is impossible for a fee-splitter or a dishonest man to maintain for any length of time a successful practice. Charges of dishonesty and abuse of privilege get to the people's ear, and they repudiate a man of this kind very promptly. Of course, there may be men throughout the country who know more about it than we do in the editorial office, and perhaps some information will be given us on this very subject.

## LOOKING FORWARD TO LEGISLATION

A reader of THE JOURNAL-LANCET from northern Minnesota has kindly sent us a letter from a prominent legislator giving his views in regard to legislation affecting the various practitioners, particularly the chiropractors. It seems that the last-named men have already begun a correspondence campaign and are endeavoring to secure the support of members of the legislature favorable to a chiropractic bill; but in this instance they struck the wrong man, for he states very emphatically his views upon the situation, which we present in full:

In reply to your letter I would say that I believe those practicing chiropractice should be under the control and regulation of the State government and should be licensed by the State, and that only those licensed should be permitted to practice. It has seemed to me that, in order to qualify for practice, they should be required to have the same educational qualifications as other physicians. I do not believe that any man can secure in a few months of time sufficient knowledge of hygiene, anatomy, physiology, chemistry, and the human system to enable him to go out and successfully minister to the ills to which human flesh is heir.

I am in favor of placing the chiropractors upon the same basis and footing as allopaths, homeopaths, eclectics, and other recognized schools of medicine, when they have prepared themselves by a similar course of preparation and study. And I would impose this requirement, not for the purpose of giving the members

of the American Medical Association a monopoly, as you suggest, but for the purpose of protecting the public from incompetent, inefficient, unlearned, and inexperienced men.

There may be much that is good in chiropractice, and you may effect some wonderful cures, and do in fact all that is claimed; but it does seem to me that the men and women who are without special education and training who have given but a few months' time and study to the subject, and yet advertise themselves as practitioners and attempt to treat people, simply prey upon the ill, weaknesses, and misfortunes of mankind, and are little less than fakirs, imposters, and charlatans. I believe this practice should be stopped.

The letter speaks for itself, and no editorial comment is needed except to say that if every doctor took the same interest that the doctor in northern Minnesota did, and wrote to his representative regarding these various cults, there would be no spectacular or continuous fight among the sporadic healers and the real men of medicine.

Something must be done in this respect at the annual meeting of the Minnesota State Medical Association, which takes place in Minneapolis in October. The Legislative Committee will probably report upon this point as well as upon other things, and endeavor to keep the field of medicine free from contamination.

#### SOME FIGURES ON POLIOMYELITIS IN MINNESOTA

The State Board of Health has complete records on poliomyelitis in Minnesota since 1908, and it is interesting and informing to compare their figures in the light of present conditions.

From January 1 to August 23, 1916, there have been reported 434 cases, including 75 abortive cases, with 39 deaths. These cases occurred in 145 of the 2,700 Sanitary Districts and in 59 of the 86 counties of the state. The record from 1908 to 1915, inclusive, is as follows:

1908—Cases,	150—Deaths,	9.
1909—Cases,	900—Deaths,	234.
1910—Cases,	631—Deaths,	201.
1911—Cases,	117—Deaths,	59.
1912—Cases,	43—Deaths,	23.
1913—Cases,	90—Deaths,	30.
1914—Cases,	32—Deaths,	11.
1915—Cases,	127—Deaths,	26.

The number of cases in 1908 and 1909 was estimated, but in each of the subsequent years the number was reported.

The 127 cases reported in 1915 include 95 cases of the epidemic in the St. Cloud district.

The total number of deaths in the state in the eight years previous to 1916 was 593, which gives

an average for the eight years of 74 deaths a year. While infantile paralysis caused 593 deaths in this eight-year period, infantile diarrhea caused in Minnesota in the same period 9,174 deaths, or an average of 1,145 deaths a year.

The great anxiety and fear caused by infantile paralysis is due very largely to the unknown factors in its cause, its mode of transmission, and its possible effects aside from death.

The State Board of Health has done practically everything humanly possible to prevent the spread of the disease, and it has been doing, throughout the eight-year period above named, all that has been wisely done in any other state, as shown in the recent Washington conference of representatives of state boards of health. Unwise, expensive, and spectacular measures might allay the fears of some panic-stricken people, but such measures have no place in the work of the Minnesota State Board of Health.

## MISCELLANY

### HERBERT L. HULBURD: AN APPRECIATION

BY A FRIEND

On the 13th of May there passed away at his home in Morris one of the best known physicians of western Minnesota, Dr. Herbert L. Hulburd. For thirty-eight years, Dr. Hulburd had been a practitioner of that city, and he belonged to that rapidly thinning class of the older doctors who cannot by age be kept back from the front of scientific work.

A native of New York State, he graduated from Long Island College Hospital in 1875, and practiced in Prescott, Wis., two years before coming to his permanent location.

Ethical almost to a fault, Dr. Hulburd was never known to do an unkind act or shirk a duty, and many are the friends and colleagues who poignantly feel his passing away.

## NEWS ITEMS

Dr. E. A. Warner, of Waverly, has moved to Iowa.

Dr. Thomas Jones, of Chester, S. D., has moved to Sioux Falls, S. D.

Dr. W. W. Scott, of Walhalla, N. D., is moving to Beaver Lodge, Canada.

Plans have been perfected whereby Fertile will have a well-organized hospital.

Dr. C. M. Campbell, of Melrose, has purchased the practice of Dr. O. E. Stewart, of Bricelyn.

Dr. F. A. Allen, formerly of Elysian, has returned from New York City and located in Crosby.

Dr. Warren Wilson, of Northfield, is spending several months in New York City doing post-graduate work.

Dr. W. F. Weise, of Bismarck, N. D., has become an associate of Dr. G. A. Sarchet, of New England, N. D.

Dr. George Lipp, of Chicago, has become associated with the firm of Roan, Fisher & Strauss, of Bismarck, N. D.

The Minnesota Public Health Association will meet in Minneapolis on October 11. We shall print the program in our next issue.

Dr. O. C. Breitenbach, of Frazee, has sold his practice to Dr. P. M. Rosenwald, of Minneapolis, and will take postgraduate work in Chicago.

Dr. E. L. Estabrook, a veteran of the Civil War and a resident of Minneapolis, died last month in Brookline, Mass., after a short illness.

Dr. Z. P. King, of Minneapolis, has purchased the practice of Dr. L. R. Critchfield, of Tolley, N. D. Dr. Critchfield has moved to Kenmare, N. D.

The new emergency service of the Minneapolis City Hospital responded to 310 emergency calls and 185 non-emergency calls during the month of July.

The St. Paul schools will have additional visiting nurses this winter. Dr. Meyerding's work as director of hygiene is producing splendid and tangible results.

Minneapolis is to have a second open-air school and a children's preventorium, the result of the work of the Anti-Tuberculosis Committee of the Associated Charities.

The firms of Drs. Perkins & Nachtwey and Drs. Bowen & Long, of Dickinson, N. D., have united and will be known as Drs. Perkins, Bowen, Nachtwey & Long.

Contracts have been let for building two additional stories on the Barton Hospital building at Watertown, S. D. This will give the hospital room for over one hundred patients.

Dr. J. P. Greaves, a recent graduate of the University of Minnesota, who did work in the hospitals of St. Paul and Minneapolis, and acted

as police surgeon in Minneapolis, has entered into partnership with Drs. Ewing, Kenmare, N. D.

The Devils Lake District Society of North Dakota held the largest attended meeting in its history last month. Papers were presented by J. G. Lamont, of Dunseith; Dr. R. C. Heron, of Tolna; and Dr. G. F. Drew, of Devils Lake. The next meeting will be held in October, probably at Rugby.

The nurses' training school of St. Luke's Hospital of Duluth graduated a class of six nurses last month. The well-attended and somewhat elaborate public services common to the giving of diplomas to graduating nurses attests the public's esteem and appreciation of the women who devote their lives to such work.

At the recent Washington conference of representatives of state boards of health on the control of the spread of infantile paralysis, the Northwest was represented by Dr. H. M. Brackin of the Minnesota Board and Dr. P. B. Jenkins of the South Dakota Board. North Dakota and Montana sent no representative.

#### PHYSICIAN WANTED

A good doctor is wanted at Coleharbor, N. D. Write to C. A. Fuglie, Secy., Coleharbor, N. D., for particulars.

#### APPARATUS FOR SALE

One National steam-pressure sterilizer, medium size 18-inch gasoline heater. Inquire of Tibbets & Wise, Wayzata, Minn.

#### DENTAL OFFICE TO SUBLET

Will sublet dental office in the Donaldson Bldg., Minneapolis. Furniture for sale cheap; fine opportunity for a dentist. Address 380, care of this office.

#### LOCUM TENENCY WANTED

I desire a locum tenency for a month or the entire winter. Have had extended experience, and can give best of references. Address 397, care of this office.

#### PRACTICE FOR SALE

North Dakota practice for sale. No competition. Collected \$4,000 last year. Population, 350. Good territory. Will sell for \$200 cash. Address 385, care of this office.

#### PRACTICE AND HOSPITAL FOR SALE

Completely equipped 10-bed hospital and office including x-ray with practice which ran \$11,000 this last year. Good proposition for good live young man who can do surgery. Central Minnesota town with large territory. Reason for selling, want to move to city. Address 378, care of this office.



## PHYSICIAN AND SURGEON WANTED

To do institutional work in a southwestern Wisconsin town of 4,000. Scandinavian preferred. Must be young, sober, energetic, willing to work and a good mixer. Graduate of A+ school. References requested. Address 381, care of this office.

## PHYSICIAN WANTED

A young doctor who speaks German to locate in one of the best towns in western North Dakota. Have party who will open drug-store at same time. Address 377, care of this office.

## OFFICE ATTENDANT WANTED

A nurse is wanted to assist physician and for office attendant. Small southern Minnesota town. Hospital work contemplated. No special training required. Can be kept busy. Address 398, care of this office.

## PRACTICE FOR SALE

Must be sold within a month. In town of 600, twenty miles to nearest town. Said to be the beauty spot of North Dakota. One other doctor in the town; \$100 will buy the business. Address 394, care of this office.

## EXPERT VALUATION

Physicians who desire the services of a man experienced in the valuation of office furniture, instruments, surgical, x-ray, and other electrical outfits, libraries, etc., may address 400, care of this office.

## A FIRST-CLASS DOCTOR WANTED

Fine location, big territory, and a thriving country. No charges on location. All we want is a good doctor. Write or come and see me. J. M. Totten, Randall, Minn.

## GOOD OPENING FOR YOUNG MAN IN MINNEAPOLIS

I will rent my fully equipped office, except for three evenings in the week, in the best outlying district of Minneapolis, and can refer some business to a good man. I have taken a downtown office. Rent cheap. Address 291, care of this office.

## PARTNER WANTED

A physician to buy half interest in a country practice in a small town. Must be Protestant, and a German or an American. For information, address 396, care of this office.

## GOOD LOCATION OPEN

A good location in a prosperous North Dakota town of 1,600 is open to a man who can do good surgery, with his general practice. It is a freight division point. Address 389, care of this office.

## PHYSICIAN'S EQUIPMENT FOR SALE

I desire to sell the office fixtures, instruments, library, etc., of my husband, who recently died. Everything has been inventoried and reported in first-class condition. For information address 382, care of this office.

## ASSISTANTSHIP OR PARTNERSHIP WANTED

I would like to become associated with a busy practitioner. Am graduate of an A No. 1 school. Have had seven years' experience with a corporation and mining surgeon. Am married, a Mason, and can furnish best of references. Address 393, care of this office.

## BUILDING WANTED

We desire to rent a suitable building to convert into a diabetic institute, exclusive for the treatment of diabetes, or would rent with the option of purchase a sanitarium or private hospital. Send full particulars to The Janun Co., Inc., 343-44 Loeb Arcade, Minneapolis, Minn.

## PRACTICE FOR SALE

In town of 500, on one of the most beautiful lakes in Minnesota; large unopposed territory; practice has run around \$3,500 to \$4,000 last two years; collections good. Have a small private hospital, office, and residence combined; do large lumber contract business in the winter. Have accepted a larger field to practice in. Will sell for \$400 if I can make quick sale; this includes practice and considerable office and operating-room equipment. This is a snap for someone taking it quick. Address 388, care of this office.

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## ACUTE MASTOIDITIS\*

By A. EINAR JOHNSON, M. D.

WATERTOWN, SOUTH DAKOTA

Of the many brilliant chapters in the history of modern surgery, few loom up as prominent as that dealing with the perfecting of the surgical treatment of acute mastoiditis.

In order to better appreciate the great progress made in this field of special surgery a few references are made to some of the men who have become pioneers in this field, and whose methods, though crude in the light of modern achievements, nevertheless, have blazed the way for the perfected technic of the present.

While Valsalva, in 1740, and later Heuermann, in 1757, recognized the practicability of draining a suppurating middle ear through a spontaneous opening of the mastoid process, nevertheless the honor of priority in actually opening the mastoid with the aim of draining the pus from the tympanum belongs to the French surgeon Petit. Valsalva and Heuermann made use of the fistulous opening in the mastoid after it was formed by nature, and syringed the middle ear, but never had the courage to *make* the opening for that purpose.

While Petit's work, published in Paris in 1774, gives him undisputed priority in the opening of the mastoid to gain a free outlet for the pent-up products of inflammation of the tympanum and mastoid, other early operators were Jassar, a Prussian army surgeon, who successfully performed the operation upon the right mastoid of a soldier in 1776. He was encouraged to attempt the operation on this patient by the fact

that the same patient had formerly had repeated attacks of suppuration of the middle ear on the left side, which, finally, after a spontaneous rupture of the mastoid cortex, was permanently healed; and now when the suppurative process started on the right side, he opened the mastoid on that side with a chisel, emptied the pus cavity and cured his patient.

Ten years elapsed before we find a report of anyone who ventured to imitate the Jassar operation, and then it was only to throw discredit upon the undertaking, as the pathological factors indicating the operation were not sufficiently understood. Again in 1785 the Prussian surgeon Löffler made an unsuccessful attempt to establish through-syringing from the tympanum to the mastoid.

The Swedish surgeon, Hagstrom, who, shortly after Löffler's failure, attempted the operation, met with no more success than had his predecessors, and when, in 1791, Dr. Berger at his own urgent request was operated upon by Dr. Koplin, of Copenhagen, for the relief of deafness and tinnitus, and succumbed to meningitis from sinus thrombosis, the operation received such a setback that for thirty years but a single operation, that of Webber, of Hamburg, is recorded. The various attempts had only served to condemn the procedure, as the indications for its performance were indefinite, the prognosis doubtful, and the operation itself attended with danger to the life of the patient. However, it was these various failures in performing the operation according to the crude understanding which the profession

\*Read at the 35th annual meeting of the South Dakota State Medical Association at Aberdeen, May 23 and 24, 1916.



of those days had of the anatomy, physiology, and pathology of the mastoid and middle ear, that stimulated a vigorous pursuit of these branches, which later formed the scientific groundwork upon which, as a substructure, modern mastoid surgery rests.

Up to the middle of the last century no contribution of note had been contributed by any but French, German, and Dutch writers, but at this time Wilde, an Englishman, introduced his procedure for periostitis incident to mastoiditis, which has become perpetuated in otological literature as the Wilde incision. He advocated this incision simply as a means to relieve the tension of the periosteum and to hasten the perforation of the cortex; but he deemed the opening of the cortex an altogether too serious undertaking, except when the patient was in extremis, and then in the majority of cases he thought it simply a means by which a fatal issue was hastened.

Times have changed, and now, in the language of Whiting, "as a general proposition we may affirm that whenever Wilde's incision is indicated a mastoid operation is imperative."

The wholesome respect in which the profession held the procedure of perforating the mastoid cortex may be gathered from the fact that from the time of the discredited attempts of Petit and Jassar, up to the year 1873, only a total of thirty-five cases were reported. In the year 1873 the real impetus was given to a rational and safe procedure of opening the cortex and evacuating the pus from the mastoid cells and antrum by the epoch-making report of Schwartze. From this time mastoid surgery has steadily progressed until it has become a uniformly safe and life-saving procedure in the domain of otology, the mortality now ranging from eight to twelve per cent.

#### SYMPTOMS

Pain in varying degrees of intensity is usually present. It is usually worse at night, is deep and boring in character and is relieved when the intratympanic pressure is lessened by paracentesis or spontaneous rupture of the tympanic membrane; it recurs if the opening is allowed to close.

*Temperature.*—The temperature varies from normal to 104° to 105° F.

*Discharge.*—This is one of the symptoms usually present, and, if the membrane is opened early or sufficient time has elapsed for the membrane to have ruptured and if pulsating in character and accompanied by temperature, is a strong indication of pus in the mastoid.

*Pulse.*—This is usually accelerated.

*Meatus.*—We often find a sagging of the posterior superior part of the canal, increasing as we approach the drum, indicating pus under pressure in the antrum. This is practically pathognomonic of pus in the mastoid.

*Membrana Tympani.*—It first loses its normal lustre, becomes dull, hazy, and congested; later on it is bulging, or is found to be perforated in one or more places.

*Tenderness to deep pressure* is usually elicited over the antrum, at the tip, at the point of exit of the emissary veins, and over the premastoid lamina.

*Swelling.*—In neglected cases of adults, but still more often in children, we find a swelling over the mastoid, a displacement forward of the auricle and fluctuation.

#### DIAGNOSIS

The diagnosis is dependent mainly upon the evidence we can obtain by inspection and palpation, together with the history of the case and such information as the patient may be in position to give as to the character and situation of the pain, and the amount and duration of the discharge; and, lastly, our diagnosis can be reinforced by the aid of röntgenology and by microscopic investigation of the discharge and the blood. The latter will have more bearing, however, upon the prognosis than upon the diagnosis, while the former will, in most cases, give us valuable hints as to the anatomic character of the mastoid as relates to the position of the antrum and the lateral sinus, and as to the location and extent of the pneumatic cells, and, lastly, as to whether or not bone necrosis has taken place.

One must, however, never lose sight of the fact that it is dangerous practice to rely too much on any one or even a group of these diagnostic aids, as there is frequent and extreme variation in the different cases, both as to anatomic arrangement and pathological manifestations. We may thus have a mastoid filled with pus and extensive necrosis of bony structure without either pain or rise in temperature.

We may have distinct pathological changes in the mastoid, and there be neither sagging of the membranous canal, discharge from the middle ear, nor tenderness by pressure. Neither can we go by the classic symptoms of inflammation, namely, heat, swelling, and redness, for these are usually conspicuous by their absence in acute mastoiditis in the earlier stages, while they are

usually more or less constant in furunculosis of the canal.

In cases where a thrombosis of the sinus is suspected, a blood culture should be taken, and, if positive, it is strong evidence of thrombosis, and should point the way to immediate operation, provided we can exclude the bacteremia from other foci of infection.

The leucocyte count in acute mastoiditis is so variable that it is of very little diagnostic significance.

It is our duty to make use of such aids to determine the true condition of our patient as modern science now is able to offer us, but the surgeon must be broad enough not to base his diagnosis on one or a few diagnostic features but consider all the evidence as obtained from the history of the case, the physical findings, and such data as the laboratory may have been able to give.

#### WHEN TO OPERATE

While we may, in the light of present-day knowledge, gained from the experience of otologists generally, disregard the attitude of the enthusiast who urges operation in every case of acute otitis media in which mastoid tenderness persists over twenty-four hours; and while we may likewise disregard the ultraconservative who fails to see any urgency for operative measures until fluctuation is established and general sepsis is evident, nevertheless, there is a certain symptom complex or rational symptomatology which, in the mind of the average surgeon, is sufficient to warrant the subjecting of the patient to the mastoid operation.

The question, however, is at times a most perplexing one to answer satisfactorily both as to oneself and to the patient. This is not only true in the case of a novice in this field or in the case of those of limited experience, but it seems to prevail also among those who are, by all of us, recognized as masters in their specialty and whose experience extends over periods of years which in many cases amount to a quarter of a century or more, and who have had the privilege of gathering data from an immense amount of material in the metropolitan clinics. To illustrate this point the following opinions from leading American otologists are quoted:

Norwall Pierce, of Chicago, says: "The indication for a mastoid operation is a purulent discharge coming for three weeks from the external auditory canal, whether or not there is pain and swelling in the mastoid. After three weeks we

may know there is disintegration of bone by softening within the mastoid."

John Kyle expresses himself thus: "I am of the firm opinion that, if you have a pocket of pus and the conditions are such that you can operate and remove the pus without endangering the life of your patient, it is your duty to do so. The significance and future effect of an otosclerosis is something that you and I ought to know."

George Dixon, of New York, gives it as his opinion, that, in cases where the microscope has revealed the streptococcus mucosus in the aural discharge, every day over two weeks that the case is allowed to run is a positive and increasing danger to the life of the patient. He cites a series of six cases taken at random from the records of the New York Eye and Ear Infirmary, which had a history of a discharging ear for from six weeks to six months prior to the operation, all of which were proven microscopically to be infected with streptococcus mucosus, and all of which were operated on and died, in from a few days to a few months after operation, from intracranial complications.

The presence of this micro-organism thus ought to be a definite sign for an early operation, even though many other cardinal symptoms are lacking. There is abundant support of Dr. Dixon's assertion in this matter in the reports of other investigators as reported in current literature upon the subject.

Welty, of San Francisco, in a series of one hundred cases gives the streptococcus mucosus as a causative factor in ten per cent of them.

If the case is one of acute mastoiditis superimposed upon a chronic suppurative otitis media, operation should be done without delay for the reason that most of these cases are the sequelæ of measles, scarlet fever, and tuberculosis; and, again, it is from these cases, rather than from the purely acute ones, that we get most of our sinus thromboses and intracranial abscesses.

Whiting gives it as his opinion that the operation should not be deferred more than one week after the mastoid symptoms have been present. Others put the period of waiting as long as six weeks. But while authorities may differ as to the time, showing there is no definite rule that can be laid down, nevertheless, we know, generally speaking, that the earlier the diagnosis is made and proper surgical treatment given, the more sure we are of rapid and favorable outcome both as to life and preservation of function.

Before leaving this phase of the subject it

might be well to say: Do not operate in any case until you have excluded furunculosis of the canal, a developing herpes, or neurasthenia.

#### TECHNIC OF OPERATION

The hair should be shaved for an area sufficient to give a clear field for the operation, usually extending about four inches back of the ear. The field should be well washed with soap and water followed by 1-1,000 bichloride solution, alcohol, and ether, or, as often used of late, the field having been washed clean the previous evening and protected by a dry, sterile dressing, is painted with a 25 per cent solution of tincture of iodine, two coats being applied about ten minutes apart.

*Incision.*—The incision is begun at the point of the mastoid tip, the knife carried well down to the bone, and the incision extended in a curved line corresponding to the postauricular fold, and from one-eighth to one-fourth inch back of it up to a point slightly above the superior limit of the auricle. If needed, a second incision an inch to an inch and a half and at right angles to the center of the curved incision, can be made extending straight backward towards the occipital protuberance.

The periosteum is next carefully peeled away from the bone, backward and forward from the incision. While the elevation of the periosteum can be accomplished with most any instrument designed for the purpose, I have found the rectangular hoe-shaped elevator to accomplish the feat most easily and also with a minimum of trauma to the periosteum; and to preserve the integrity of the periosteal flaps is of no small importance in the subsequent process of healing and prevention of deformity.

The periosteum having been disposed of, the bony landmarks are made out. These are the temporal ridge, which is a backward prolongation of the zygomatic process of the temporal bone, the suprameatal spine, or spine of Henle, situated at the superior margin of the bony canal and a few millimeters posterior to it. A triangle constructed with these two lines as the base and one side of the triangle, forms the usual site for entrance to the mastoid antrum.

As the antrum is the reservoir from which pus is disseminated throughout the rest of the cellular structure, and inasmuch as it is the limit beyond which it is not necessary nor feasible to go in the surgical treatment of acute mastoid disease, it is readily apparent that it is of prime im-

portance to locate this cavity as accurately as possible prior to opening the bone and to adopt the shortest and safest route of reaching it.

While obviously no absolute measurements can serve for all cases, for the simple reason that very great variations in anatomical arrangement obtain in the different cases, nevertheless, it can be said that "the antrum lies within the area of the suprameatal triangle, and in ninety-five per cent of all mastoids it is to be found at an angle of forty-five degrees upward and backward from the bony meatus at a depth of from one-half to three-quarters of an inch beneath the cortex" (Whiting.)

During the process of gaining entrance to the antrum and while removing the products of inflammation from the bony cells of the mastoid, care must be taken not to invade the middle cranial fossa above, nor to injure the zigmoid portion of the lateral sinus behind. By keeping in mind the main landmark, namely, the temporal ridge above, and by so directing the chisel that its strokes are directed downward and forward, one may avoid the danger-line as far as the middle fossa is concerned. The anterior landmark is the premastoid lamina or posterior wall of the bony canal. By hugging this closely and working inward, upward, and backward, access to the antrum is gained. Then completing the excavation of diseased cells backward until all diseased cells are removed, until healthy bone, as far as can be ascertained, is reached, the characteristic bony lamina bulging out immediately over the situation of the lateral sinus, usually appears in the field.

No rule at all reliable can be laid down in regard to the position of this vessel, for there are cases reported where it was actually in contact with the posterior wall of the canal. I have operated in one case where it was removed from the canal by scarcely an eighth of an inch, while in other cases one may do a very extensive removal of the posteriorly located cells and not encounter the sinus at all within the ordinary limits where it is usually situated. It behooves one always to expect to find it out of its normal course, to work cautiously backward, always directing the cutting edge of the chisel or curette forward to make sure that one always keeps the cutting edge of any instrument used well in sight, and not apply undue force in such a manner that the overlying bone might be crushed in or penetrated, and thus the sinus become accidentally injured



or exposed to the infective material contained in the diseased bony cavity.

In the adult, if reasonable care is used and one is familiar with the anatomy of the part, one need have no special dread of injuring the facial nerve. In children, however, where the tip is rudimentary and the facial nerve therefore poorly protected as it issues from the skull, one must keep this in mind, or injury is apt to be caused to this nerve during removal of the tip.

The operation may be considered completed when all diseased bone is removed even though the lateral sinus or dura has to be uncovered in doing so. The cavity left after the completed operation should be free from all sharp projecting spiculæ of bone, and sharp corners should be rounded off and rough places smoothed down to facilitate the process of healing.

If an engine-driven burr is used, it is well to thoroughly remove, as far as possible, all bone dust produced by this instrument, for otherwise healing will be materially interfered with.

*After-Treatment.*—The wound is either al-

lowed to fill with blood clot, and the flaps united completely at the close of the operation, or, as practiced by most operators, the wound is partially closed and a packing or drain introduced to be removed later when granulation is well established and drainage no longer needed. The auditory canal is cleaned out and kept clean, an aseptic dry-gauze dressing is applied, and the patient is kept in bed for three to five days, when the dressing is changed and the patient allowed to be up. If severe pain is experienced or if a considerable rise in temperature takes place, the dressings are of course changed earlier.

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(For discussion see page 534.)

## SUPPURATIVE MASTOIDITIS—A SURGICAL EMERGENCY\*

By F. J. PUTNAM, M. D.

SIoux FALLS, SOUTH DAKOTA

Otology is the only branch of surgery in which practitioners appear content to continue to occupy a subordinate position in their dealings with disease, consequently operations upon the ear are usually characterized by failure to prevent deafness; indeed, the old ones were not designed with this object. If the surgeon does not acquire the mastery of disease, the patient is likely to suffer. It is, in fact, difficult to obtain precise details of the results of the various operative methods for treatment of suppurative mastoiditis.

In recent years the general surgeon in suppurative appendicitis operates immediately, going down and removing the appendix entire. The laryngologist in suppurative tonsillitis enucleates the tonsil; therefore, I adventure to assert that we have a surgical emergency in suppurative mastoiditis. It is of no use endeavoring to save the hearing of an ear which has already been destroyed by disease, or attempting to save a life which is beyond recall. Like appendicitis, this likewise dangerous affection needs treatment of

a certain kind at a certain stage in order to insure success. Dillydallying in the orthodox way with lotion, powder, or syringe, no one of which reaches the chief seat of disease, cannot longer be regarded as a rational proceeding. As the antrum is always involved in acute mastoiditis, the antrum must be treated if we expect to be successful. The mechanical arrangements in the tympanum are nothing short of marvelous. Though the cavity is not as large as the half of a half-inch cube, I have observed the equivalents of the following: balance-weights, light reciprocating parts, universal joints, Cardan shaft, enclosed crank chamber, surface and forced lubrication, governing and acceleration. The delicate adjustment of these structures is easily deranged by inflammation; the result is more or less deafness. A large proportion of those who become deaf by the time they are twenty years old, have suffered in childhood from inflammation of the middle ear, which has not gone on to perforation of the drum-head and discharge. This suggests that, when spontaneous perforation does not occur in a case of otitis media, early paracentesis would hasten the drainage of the

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cavity and tend to prevent subsequent deafness, consequently attention must be concentrated upon the antrum if treatment is to be successful.

If we call ourselves aural surgeons, let us operate when necessary to prevent deafness; otherwise we are sailing under false colors. The present custom of withholding these cases from the otologist until hearing is past saving in ninety per cent and life itself lost in twelve per cent, is opposed to the welfare of the community. An immediate change, therefore, in otological teaching regarding the stage at which these operations should be performed, is demanded in the interests of humanity and for the reputation of otology.

The mortality which results from aural suppuration in our practice has been greater than that from all the other diseases which are treated by us added together. The patient comes too late; he has not been led to believe that a discharging ear is a danger to life or even to the hearing. Not long ago the mortality after operations for appendicitis was as high as that after the mastoid operation. It is much reduced now. A simple explanation of the means whereby this desirable reduction was effected has recently been given by Dr. Renton, of Glasgow. In a short note on the "mortality after operations for appendicitis" he writes as follows:

Thanks to the promptitude with which medical men have cases of appendicitis operated on, the mortality is very much less than it used to be. Looking over the last 281 cases operated on in the quiescent stage, I find that no death occurred from the operation. A case of sudden death took place three weeks afterwards, but this is fortunately a very exceptional occurrence at so late a stage.

The last 93 cases of appendicitis with abscess formation, which were all operated on promptly, recovered. One case, which was not operated on until septic absorption had taken place to a considerable extent, died. It is satisfactory to find that the number of cases of general peritonitis sent to be operated on has greatly diminished during the last three years, and when sent they are at a much earlier stage, and recovery therefore is much more certain. Where patients have passed the third day of their illness the mortality is very high; when operated upon on the first or second day, the mortality is frequently as low as two per cent.

In a talk with one of the prominent surgeons of Sioux Falls recently he informed me that he does not wait for recurring attacks of appendicitis before operating, but operates immediately upon the diagnosis being established.

Dr. Renton's note, corroborated personally by many other surgeons of my acquaintance, shows that private medical practitioners, by insisting

on surgical assistance at an earlier stage, have wrought a revolution in the mortality from appendicitis and have saved a great number of valuable lives. The same body of medical practitioners may bring about a similar beneficent revolution in regard to aural suppuration by insisting on a change in the stage at which intervention shall take place, and thus save the hearing and the lives of thousands every year.

Mr. Charles Heath, with whom I had the pleasure of spending three months in his private and clinical practice in 1910, in London, opened his address as follows:

Aural appendicitis is the name by which chronic aural suppuration might be known, for disease of that mucous cul-de-sac, the mastoid antrum or appendix of the ear, is responsible, according to my investigations, for the perpetuation of the discharge. Like appendicitis in the abdomen, that in the ear is a latent danger. In both situations it is a grave disease on account of its liability to infect neighboring vital parts. In the abdomen it may cause local abscess or fatal septic infection of the peritoneum (peritonitis). In the ear it may cause local, or cerebral, abscess, or fatal septic infection of the jugular vein, or the pia mater (meningitis). Now no careful surgeon waits for abscess in abdominal appendicitis, nor in my opinion should he wait for it in the ear; for just as removal of the abdominal appendix will eradicate the danger there, so will timely elimination of the aural appendix usually restore the ear to function and to safety.

Responsibility for the successful treatment of early cases of suppurative mastoiditis usually rests with the family doctor. He it is who holds the reins at that early period of the disease when the opportunity to save life and hearing is greatest. But he, not being a specialist, is largely dependent in this matter on the guidance to be derived from text-books all of which are grievously inadequate as regards the pathology and treatment of this disease during its early stage, which is indeed the only stage in which perfect repair is likely to be effected.

Confinement to bed with the head raised and wrapped up and warmth applied to the affected ear, a light diet, gentle aperients, alkaline medicines, and, above all, early incision of the drum-head within an hour or two of the commencement of pain or if there be bulging of this membrane, will do more to relieve the pressure of the septic fluid and prevent involvement of the cancellous walls of the mastoid antrum and consequent persistence of disease, than any other treatment which I have tried or heard of, including vaccines, which, by the way, have rarely any effect whatever. Should adenoids be present they will need attention.

I desire to state with all the emphasis at my command that, if patients suffering from aural suppuration seek specialists' advice early, it is possible to insure the preservation of hearing in about ninety per cent of those who lose it while undergoing the usual orthodox treatment.

A difficult problem, however, is involved in the treatment of these early cases; for, when operations are performed promptly enough to ensure the safety of the hearing, it is possible that on rare occasions the surgeon may merely be anticipating a late though natural cure. This, however, is a contingency which cannot be evaded and must consequently be faced. Does not the general surgeon regularly face and decide such matters to the advantage of his patients generally by operating during the quiescent stage in cases of appendicitis, even though in some of these cases a spontaneous cure would doubtless have taken place? Are we less competent to decide and to act when the ear and its appendix are involved? There can be but one answer to these questions. Surely, it is better in a doubtful case (more especially if the second ear be defective) to act promptly, yet safely, by operating and ensuring the preservation of the hearing, rather than run the risk of lifelong misery through deafness on the part of a patient, and lifelong regret on the part of a surgeon for the loss of an ear, possibly the loss of a life, certainly the loss of a great opportunity. Otology is in need of some guiding principles.

Cases undoubtedly occur in which drainage from the mastoid antrum is dangerously impeded before, as well as after, the ear has commenced to discharge through a perforation in the drum-head. Doubtless a few of these cases recover without mastoid operations, but this fact by no means proves that the surgeon has acted wisely in withholding such treatment, any more than it would prove that undoubted appendicitis which had recovered without operation, had been wisely treated. For a recurrence is common in each of these diseases, and should the recrudescence happen at a time and in a place where no expert assistance or modern hospital equipment is available, it would be liable to prove fatal.

When a dangerous disease which imperils also the hearing is known to exist, even though it may, and occasionally does, subside, it is surely better to put life and hearing in permanent safety by an operation practically devoid of danger, than to withhold such assistance, even if appar-

ently justified in so doing by a partial or temporary recovery.

The greatest field of usefulness at present open to the otologist is in the prevention or deterioration of the tympanic structures concerned with the transmission of sound from the air to the labyrinth. It is these parts which suffer in aural suppuration and in non-suppurative catarrh, and as nearly all deafness is due to these two diseases, they are of the greatest importance. Defects in tympanic structures can occasionally be cured by Nature—never by the surgeon alone, though he may assist. He will assist more effectively if he has a wide knowledge of the pathology of aural suppuration in its early stages.

Acute suppurative mastoiditis may be defined as an acute inflammatory process originating in the antrotympanic cavity and spreading thence to the mastoid cells proper. It is probable that the inflammatory process passes in most cases through certain fairly well defined stages,—viz.: (1) stage of vascular engorgement and cell infiltration; (2) suppurative stage, characterized by the presence of fluid pus; and (3) the stage of osseous necrosis or softening. These three stages are clearly and easily recognized microscopically during operations upon patients in different stages of the disease.

To me, the importance of the cavity of the antrum cannot be emphasized too much, inasmuch as the persistence of the disease appears to depend on this chamber rather than on the tympanum and therefore it becomes necessary to regard it as the key to the situation. A few remarks concerning it will therefore not be out of place. It seemed to me that if the cavity of the antrum remained unaffected there was a good prospect that the tympanum might not become diseased past recovery and that if it became seriously diseased no treatment of the tympanum through which antral discharges must pass could be relied upon to effect a cure.

The drainage of the antrum, which from its proximity to, and liability to involve, the most vital parts should be called the danger zone of this disease, takes place through a small unyielding bony passage, the aditus, which may be obstructed more or less easily according to its size, which is variable. It does not need to be completely and rigidly obstructed for enlargement of the cavity behind it to take place. A little pressure long continued may expand it in any direction; upwards to the middle fossa less than one-eighth of an inch away, downwards, and



outwards to the mastoid process, backwards, or backwards and downwards, to the lateral sulcus and sinus.

Erosion through the bone above the antrum into the middle fossa is very common and erosion from the attic into the middle fossa above is very rare in spite of the fact that the thickness of the bone over the latter cavity is less than over the former. Surely there must needs be something to account for this fact; and it is not unreasonable to attribute it, partly or mainly, to an interference with the drainage through the aditus.

If the aural surgeon were to operate upon every case of otitis media, he would operate upon many cases which would otherwise recover spontaneously. This could not be justified. If, however, he waits and daily watches and tests the affected ear until the symptoms indicate that the disease is progressive, or until lapse of time shows that spontaneous cure is improbable (for a very large majority of those which recover spontaneously do so within three weeks), he will be disappointed to find that a small number have passed the stage in which the disease is curable by the conservative plan of operation. These serious cases are usually incurable by any treatment but radical operation, and this entails the loss of hearing. Therefore, as soon as the symptoms or lapse of time show that a mastoid operation is necessary we should consider that we have a surgical emergency to deal with, and, therefore, should treat it accordingly.

#### DISCUSSION OF THE TWO PRECEDING PAPERS

DR. L. G. HILL (Watertown): I wish to compliment Dr. Johnson on his thorough manner in covering the general operation and indications for mastoid disease. He has certainly gone over the history of the disease very thoroughly and gives us a clear and concise method of procedure in the operation.

Dr. Putnam has laid especial and enthusiastic emphasis upon the importance of this operation, with which I fully concur and agree.

The importance of mastoid operations has perhaps been overlooked to a certain extent, and I think the doctor's comparison of the otologist and the general surgeon is very apt. The general surgeon who allows a case of chronic appendicitis, even though it be trivial, to escape is considered to be very lax, and why should not the otologist give the same consideration to mastoid conditions? The laity must be educated to realize the danger of a chronic suppurating ear; and this education must be given by the general practitioner to whom these cases come. How frequently we see, every one of us, chronic cases of aural suppuration, and how trivial they are considered by parents and the laity! This is wrong. Very many patients with suppurating ears caused my measles or by

scarlet fever early in life are running about, and very little heed is paid to them. It is certainly very much better to have them operated on, and cleared up, as they can well be.

It seems the laboratory findings in this disease are not of any great importance. The different forms of infection are there, to be sure, but the laboratory findings are not considered of great importance.

Professor Politzer never operates on a mastoid case on one symptom alone. There is one symptom, however, that we consider diagnostic, and that is a bulging of the superior-posterior wall of the canal, and that symptom, together with the symptoms of elevated temperature, with pain or tenderness over the mastoid region, should be sufficient reason for an immediate operation. The bulging of the ear drum can be easily taken care of by making an incision through the drum-head, and applying moist hot applications for twenty-four hours. This, as Dr. Putnam has shown, will relieve the pain, and give the patient a great deal of comfort; but at the end of twenty-four hours, if the symptoms have not disappeared, if the bulging is still present or has increased, if the temperature has increased, and if the tenderness has increased, it is high time to operate without delay. It is very seldom necessary or wise to depend upon a second incision of the drum membrane. If the drainage is not sufficient from the first incision, you had better operate.

The symptoms of mastoid conditions are possibly a little obscure. As you all know, we find many mastoid conditions that need operation. We find that pain is sometimes absent. We find that elevation of temperature is absent. We find sometimes that there is very little tenderness, but the experienced aurist learns to sum up the whole situation, and form a picture that is rather indefinite, yet he goes by it. He does not rely upon any one symptom, but, if you have this bulging of the posterior wall together with any other symptom, such as pain, tenderness, or elevation of temperature, you should operate.

In a conversation with Dr. Beck, of Chicago, the other day I asked him about the relative number of ear cases he was treating. He said it was rather surprising and interesting to see that recently the number of chronic mastoid cases was diminishing, due to the fact, which is very evident to the minds of all of you, that for the last ten or fifteen years careful attention has been given to the throats and noses of our patients, and when all of our adenoids and tonsils and nasal conditions are cleared up early in childhood we shall not have as many infected ears, as, this is, of course, the primary factor in the causation. It is quite possible to have a difficulty sometimes to differentiate between acute multiple furuncles of the ear and acute mastoiditis, although that may not seem to be a fact. But it is a fact, and sometimes the furunculosis is very severe, and the pain is intense. The patient will suffer as acutely from an acute multiple furunculosis as from a mastoid condition, and it is pretty hard to tell which condition you have to deal with; and, if the practitioner should make a diagnosis of mastoiditis and it is one of furunculosis, he is not always to be censured. Many good men have made that mistake in diagnosis. If you have a case of furunculosis, do not make a small incision or simply lance it, but open it completely, make a complete radical cut, and drain the furunculosis. In these acute cases I may differ a little

with some practitioners as to the incision. I am inclined to make the incision rather small. Some prefer to make a large incision. If you make a large incision you will get a large scar; and that is what you want to avoid. Make the incision as small as you can, the same as an abdominal surgeon does when he is operating for appendicitis. The surgeon who makes a small opening thinks he is doing the right thing. We need to carry that idea out in cases of mastoiditis when we operate. In times gone by, patients were going around with terrible scars, and that is unnecessary. In cutting off the hair, especially from the lids, the practice of using a starched cap is a good one. Put on a roller starched bandage, allow it to harden, and in the morning cut away, as you need. It holds the parts in place. It is unnecessary to remove the tarsus of the lid. My method is to clean up the field with iodine. It is not necessary to shave much of the head or to remove much of the hair. The field is small. Do not cut off a lot of hair from a woman's head and thus compel her to wear a switch or a wig forever. Make the incision small, suture it after the operation is performed, and allow it to fill in by blood-clot, leaving a small wick of drainage at the lower angle of the incision.

My practice is not to dress the wound very often. There is a great change coming about in caring for these cases. We used to irrigate them and pack them with gauze and dress them every other day. We do not do that any more. After the operation is performed we close the wound, leave a small wick at the bottom, put on a roller bandage, and leave it three or four days, depending upon the symptoms, as Dr. Johnson brought out in his paper. If there is any elevation of temperature or any pain, change the dressing until union has taken place. After three or four days change the dressing and remove the stitches, and you will find the wound has united, except at the lower angle, and after a few dressings, with application of a roller bandage, you can put on a collodion dressing, and the patient will be up and about.

We do not keep these patients in bed long. They are up and about the next day or two after the operation. In the last six or eight cases I have operated on the patients have left the hospital at the end of five, six, or seven days, and were up and about most of the time after the operation.

As to when to operate: I have touched on that, and Dr. Putnam has covered that phase of the subject thoroughly, but we should operate oftener than we do. We should not let these patients go when they have bulging, together with any one of the other symptoms. We should always operate.

I wish to compliment both of the essayists on covering this field as thoroughly as they have, and I am sure that both papers will bear very good results. There is no reason in the world why these mastoid cases cannot be cleared up, and operated on sooner and oftener than they have been. It is not a serious operation, and the patient should understand that it is unnecessary to keep one in bed about a month. It is a comparatively trivial operation, and the danger lies in waiting.

DR. FRANK MILLER (Aberdeen): I am sorry I did not arrive in time to hear these papers. I heard a little of the discussion, and most of it had reference to early operation.

The mastoid operation used to be considered a serious one, and, of course, under those circumstances we used to put these cases off as long as we could because the operation was considered serious and dangerous; but the operation today is not considered very serious. It is an operation that is done very quickly, and I think the great tendency of most of us is that we are trying to do too much. If we operate on a case of acute mastoiditis, and simply open up the cells and get good drainage through the drum, that is all that is necessary. In cases that are suppurating freely, if you operate on the mastoid and open up the cells and stop at that, the ear will cease discharging immediately almost, and the mastoid condition will clear up. If we go in too deeply in these cases we are liable to get into trouble. I consider an abscess here the same as an abscess in any other part of the body. There are two openings, and it is necessary to clear out all bone unless it is necrosed; but we should open up the mastoid from the outside, open up the drum and establish drainage, and the patient will get well.

The idea of operating early is one that we ought to think more about. I remember a case I had a few years ago which taught me a lesson. One night I was called to see a baby that was very sick, and I opened the ear drum. On my way back I was called to see a boy, twelve years of age, with a severe earache. I urged the parents to have the boy brought to the hospital, but they would not consent to it. The next morning they said the boy was much better. The boy was taken sick at three o'clock in the afternoon, and it was about seven in the evening when I saw him. The next morning they called me up, and said there was no use in my coming out because he was sleeping. They said he had not slept very much, but was now sleeping. I said to myself that does not look very good to me, and it was found that the boy had a genuine case of meningitis. I operated on him, but he died within two or three days.

It is very essential to operate on these cases early. It is better to operate on some cases of mastoid disease that really do not need it than to let one or two go without operation that do need it. If there is no pus, there is practically no danger. I do not believe in operating on an ear case that has little pain, but when you get pain that does not cease you had better get at the mastoid in very quick time.

DR. R. D. ALWAY (Aberdeen): I want to speak briefly of the diagnosis and when to operate. Dr. Hill referred a number of times to bulging of the posterior wall. There are cases, and many of them very dangerous ones, where we do not have any swelling at all, either of the internal or the external auditory canal, and where there is constant pain with tenderness on deep pressure. I think those are the dangerous cases. A good many physicians wait for swelling behind the ear. After swelling occurs, the acute danger is over.

Another point is with reference to the blood-clot. Dr. Parsons at almost every meeting we have tells us about the value of the blood-clot. I have made use of the blood-clot a number of times, and I want to tell you that I do not believe in fifty per cent of the cases it will answer the purpose, and I think occasionally it is contra-indicated and liable to be dangerous.

I had a case recently where I sewed it up. The patient had pressure symptoms inside of twelve hours.



I opened up, established free drainage, and the patient did well.

DR. J. G. PARSONS (Sioux Falls): There are a few points in connection with these papers I would like to lay stress on, and say a word or two about the blood-clot.

There is one thing followed up by quite a number of eminent otologists, and that is, masking symptoms in these aural and early cases by the use of the ice-bags. The use of the ice-bag deprives the otologist of some of the valuable information that both he and his patient need to determine when to operate. The application of an ice-bag, thus masking all these symptoms, is bad practice in my opinion, and I want to mention it mostly to condemn it.

Swelling of the superior-posterior wall, which is adjacent to the membrana tympani, is something which, I think, will bear a little further talk. (Here Dr. Parsons went to the blackboard and drew some diagrams in order to emphasize and bring out the points he wanted to make.) Let this (indicating) represent the tympanic membrane, and here we have an outline of the attic, and the mastoid cells around here (indicating) with the antrum coming off in this way, with a thin wall of bone in this region (illustrating) separating the external auditory canal from the mastoid itself. With the head-mirror you can see the swelling, if there is any. You can look in there. Every practitioner should look into the ear of every patient who complains of earache. If he does not do it, he is not doing his duty. What is the significance of the symptoms of which the patient complains? It simply means there is a localized osteomyelitis or osteitis in that immediate region, the swelling of which is extending and setting up infiltration of the periosteum on the canal side, and that means positively you have trouble away behind there which you cannot safely let go.

Dr. Hill advocates a small incision. I think that is a mistake. A good free incision, away up above the upper half of the auricle, is a highly desirable thing. In the first place, you want room enough to get at the seat of the trouble. The day of removing the appendix through a pin-hole has gone by. The abdominal surgeon has found out that suture material is cheap, and it takes but a few minutes to close up a big wound. You want plenty of room to get at what you are working upon. Incidentally, let us not lose sight of the fact that there are certain cells that run into the roof of the zygoma up over the attic region, these cells going up into the region I show you. If you want to have an incision large enough to clean out all these infected cells, the modern mastoid operation means you must get out everything that is involved, and your large incision will facilitate that.

Regarding the blood-clot; I will stand pat on it. Last fall I presented a paper before the American Academy of Ophthalmology and Oto-Laryngology; and I was much pleased to find out there are a number of prominent American otologists who have come to the point of recognizing the value of the blood-clot in closing up these cases. Murphy, of Cincinnati, tells me he uses it in the majority of cases, and such men as Reik, of Johns Hopkins, Clarence Blake, of Boston, and men like Wendell Phillips, of New York, are advocating and using the blood-clot and getting good results.

If a thorough exenteration of the mastoid cells has

been made you have gotten out everything; but, if you have not, you have not done a good job. After a thorough exenteration and you have a good free incision of the drum-head to take care of what drainage there may be in the tympanic cavity, I contend it is good practice to close up this posterior wound, letting it fill up with blood-clots, bring the edges of the wound together, stick a strand or two of silk or catgut into the lower end of the wound to care for the excess of serum that may form and produce tension in the first few hours and convert your tympanomastoid infection back into a simple tympanic infection, and let drainage go out through the external canal. This will all fill up with blood-clot, and you have left a natural cavity of the tympanum which has some infectious material in there; but, if you have a free incision—that is the principal thing in a mastoid operation. There should be a large free incision to care for the drainage of the middle ear. For this purpose a good gauze drain put clear down to the tympanic membrane, and changed every twenty-four hours or oftener if necessary, establishing drainage in this way, will do the work. In about fifty per cent of the cases on which I have operated I find it works, and in the other cases I do not make it work. If the blood-clot breaks down, it is a simple matter to take out two or three stitches and stick in a slight packing, and you have not lost any time, but have saved a whole lot of time, and you are going to get a much better cosmetic result. Even if you pack lightly, if you have gotten most of the suppuration under control, it is then very feasible to use blood-clot in these cases by irritating the surface of exudation to bleed, and letting the thing fill up. In this way you will save two or three weeks' time by using the blood-clot, and the cosmetic result is far superior.

DR. B. A. BOBB (Mitchell): I am not an otologist, but I have made it a practice the last twenty years, to turn over my cases to an otologist.

While I cannot discuss the papers that were read, I would like to discuss for a moment the discussion. Dr. Hill led us to believe that a small incision was the best thing to use. Maybe it is, but he compared it with a surgeon operating upon the abdomen. Another speaker said we should make a long incision. I do not believe either one of them is correct so far as the abdomen is concerned. If you make a long incision in the abdomen you do not know what nerves you cut. Sometimes you produce atrophy of the muscles. As a rule, the best incision to make, in my mind, is one through which you can deal with the pathologic condition and remove it properly. Why not make a medium incision for whatever operation you are doing that is indicated?

DR. F. H. ROOST (Sioux City, Iowa): In considering mastoid surgery the chief problem is to determine when to operate. Appendicitis and mastoiditis are not quite the same. You get rather prompt healing after an operation for appendicitis, and in a week's time the wound is practically healed. In mastoid surgery only rarely do we have healing in one week with the blood-clot. As a rule, in severe mastoid operations our cases go on for a month before healing takes place. It is a graver proposition than an operation for appendicitis. I am a little conservative on that point because we produce an external scar that is visible in



mastoid surgery. We put the patient out of commission as far as working is concerned for a number of weeks. It is a head operation. The patient has a bandage applied, and so forth. It is an expensive operation because of the time spent in the hospital, at the office of the specialist, and at home. Most mastoid surgery requires particular after-care, therefore you cannot compare it to appendicitis where you can operate, and send the patient home in a week. The after-care in mastoid cases should be in the hands of a specialist. It is a graver proposition than an operation for appendicitis. I do not subscribe to a small incision for removing the pathology and establishing drainage, and letting it go at that. That may do, and these patients may get well, but if the pathology is such as to require a mastoid operation, the patient is not going to get well immediately with a small incision, with a small curettement and drainage of the antrum. There is a middle ground. A large incision may be all right, and a small incision also may be all right for those who are going to operate through it, but fifteen years ago, when I went into mastoid surgery, I was in a large hospital where I had an opportunity of studying five hundred mastoid operations, and I began to be conservative about mastoid surgery. If I could tide the patient over I did so.

Dr. Putnam has given us a very fine outline as to when to operate. It is better to operate on a few too many cases than to let one go. One of the chief indications is function-failing. If a child comes to you with a profuse discharge from the ear, and it continues for a week or ten days you are having a function-destroying proposition to deal with. That profuse discharge from the middle ear will destroy the function of the middle ear, and there is a cardinal indication to go into the mastoid, and operate and drain that in another way than through the functional part of the ear. That is one of the chief indications. Another indication is acute infectious diseases, such as measles and scarlet fever, particularly the latter.

Recently, at the City Hospital, Iowa City, they took eight cases the first twenty-four hours of ear involvement and operated on them, and they found pus in the mastoid cells in every case. Septic absorption is another prime indication for mastoid surgery. Most of these cases have had a severe attack of influenza or some infectious disease. They are septic. They may have cleared up otherwise, but if there is ear-involvement they are likely to be extremely septic. We should have a blood-count made and a radiogram. We should study the condition of the mastoid cells through the radiogram. The mastoid, if involved, will be seen to be cloudy. The cellular structure is firm. The other mastoid may be clear, and the cellular structures can be clearly outlined on the plate. This is a great aid to the aurist, and it should be one of the things on which he bases his diagnosis; it is and is an indication to operate promptly. Persistent discharge from the ear is another indication for operation.

With reference to the blood-clot; when Dr. Parsons got up before the American Academy of Ophthalmology and Otology in Chicago last fall, I listened with fear and trembling because I did not take much stock in the blood-clot, but they were unable to down him. Several prominent men supported him in his contentions for the use of the blood-clot. I have nothing to say about it. But there is a middle ground in the after-care of

mastoid cases. In the first place, the incision should not be too large, because we are going to have too large a scar; nevertheless, we should have plenty of room in which to operate; just as a surgeon recently said, we should have all the room we require.

Another thing: when you do a thorough curettement of all diseased cells you will sometimes be surprised by finding lateral sinus involvement and breaking down over disease of the dura and tegmen. These cases go undiscovered. By taking out a few cells and draining a good deal can be accomplished. I remove the mastoid tip, the posterior canal wall, and all zygomatic cells, going down clear into the antrum, and my structures fall together rapidly. I sew a part of the wound up, and leave as small a drain as I possibly can.

DR. J. A. HOFF (Yankton): I have thoroughly enjoyed these two papers. There is a time in the year when these conditions occur.

There is just one point I wish to emphasize in regard to the diagnosis, namely, we should not forget to study the blood. In acute mastoiditis we have a leukocytosis; in furunculosis we do not—at any rate, I do not think we do. I have never known leukocytosis in cases of furunculosis.

In regard to the incision: I think particularly in children and young adults it is well to make an incision in the sulcus; then, after the wound has healed, there is no scar.

So far as the size of the incision is concerned, I do not think we can agree on that. I do not believe in making a large incision unless it is necessary. Thorough and complete exposure is always a desirable thing in any operative procedure. If you should make a small or medium incision and find it necessary to get more room, you can always enlarge it as the needs require. To attack a mastoid through a small incision and open the mastoid cells, is poor surgery. There should be a thorough eradication of all the involved cells. Another point: be sure to get your opening large in the antrum. I believe that point is of more importance than any other one detail. I cannot discuss the value of the blood-clot.

In regard to drainage: I must confess that I cannot drain successfully with gauze. Gauze is good to pack with, but in my experience and observation it dams up the drainage, and I never use it in mastoid cases. A small rubber tube about the size of a lead-pencil, or smaller, is carefully inserted into the opening in the antrum, and the other end is directed to the lowest point of the incision, and the rest of the wound is closed, with the exception of the opening made by the tube. I have found that this takes care of the drainage that is required. The dressings should be changed as often as necessary.

DR. F. C. SMITH (Yankton): There is not much difficulty associated with the diagnosis of acute mastoid disease. The only thing we have to consider seriously is the point brought out by Dr. Hill in differentiating it from acute furunculosis.

As to the time of operation: we should always have a little leeway. I like to relieve the patient at the earliest possible moment by paracentesis, at the same time making a culture-tube inoculation of the discharge, and getting as quickly as possible material for an autogenous vaccine. That does not consume very much

time. You can determine as to the time for operation, but in the meantime you can use an autogenous vaccine. With the use of an autogenous vaccine you may not find it necessary for the patient to undergo operation.

In reference to the dressings: I quite agree with Dr. Hohf in regard to the inadequacy of gauze packing and the splendid results from the use of a small rubber tube, which can be removed one-eighth or one-quarter of an inch a day, and the dressings will continue for two or three weeks.

In regard to the discharge from the ear: nothing has been said about focal infection. We know that a certain percentage of chronic ear-discharges can be relieved by the removal of the tonsils. A possible source of focal infection is the ethmoid and sphenoid, which may keep up the chronic discharges from the ear. When we have discharges extending over a considerable time we should investigate the possibility of focal infection, which may be eradicated with less trouble than after a mastoid operation, particularly the radical mastoid operation.

DR. HILL: I insist that you can very easily enlarge your incision up or down in these cases, and if you have an acute mastoid case to deal with, do not make your incision as long as you can. Why not make it small, as it is easy to enlarge it up or down, and in the acute cases you can very easily reach all of the pathological conditions through a small incision.

In regard to drainage: we do not expect a great amount of drainage. Why use a rubber tube where you expect to drain pus? A cigarette drain or a little gauze will take care of the drainage in an acute mastoid case, and the incision will heal promptly. I should say, make the incision as small as you can to begin with. The general surgeon extends his incision, and why cannot we?

DR. F. M. CRAIN (Redfield): We have heard from the surgeons and the specialists on this subject, but we have not heard from the general practitioner. I am not a surgeon, neither am I the son of a surgeon, but I recognize the fact that the subject under discussion concerns the general practitioner very often. Especially does it concern him during epidemics of la grippe. We find that most of our cases of middle-ear infection and mastoid infections occur during epidemics of la grippe, and the general practitioner should be capable of diagnosing these cases and of being able to handle them himself. Pus is destructive to healthy tissue, and wherever we have pent-up pus we have an emergency surgical case. If we understand the anatomical relations of the middle ear with the mastoid cells, and that infection comes usually from the throat, and, if infection takes place, the only opening from the middle ear is through the Eustachian tube, which becomes swollen, becomes edematous, there we have pent-up pus, and this pus follows the line of least resistance. It passes up through into the mastoid cell, and when it gets into the mastoid cells they become infected. There is a small partition of bone lying between these cells and the brain, and in the case of infection we are liable to have serious trouble.

Another thing: we are all more or less familiar with the investigations of Rosenow with regard to bacterial formation from ordinary pus—how these bacteria may grow in the blood, and one form will attack the joints, and another form other tissues of the body.

Certain forms of the organism invade the pericardium and produce pericarditis. Another form will produce endocarditis, and still another form appendicitis. Focal infection is apt to produce diseases far remote from where local infection exists. An ulcerated tooth is one of these conditions, or the crypts in the tonsils, may be constantly pouring forth bacteria, they being the origin of many of our constitutional troubles.

My object in speaking is to relate a case I had several years ago before surgery of the mastoid was very far advanced. I had a man who was an old soldier. He was broken down constitutionally. He had heart difficulty and kidney trouble. He had a very severe attack of la grippe, which was followed by suppuration of the middle ear and involvement of the mastoid cells. He finally reached a stage when I said to him very firmly, "Mr. Ward, you must have an operation." Every indication pointed to rapid extension of the mastoid inflammation, and he wanted to know whether it would be necessary to give an anesthetic to open up the mastoid cells. I told him it was. He said he would not take an anesthetic; he would die first. I was so persistent about the importance of giving him an anesthetic that he finally consented. I had in my possession some fine dentist's drills, such as were used thirty-five years ago before dental engines were so numerous as they are today, and so I made an incision through the integument under local anesthesia, and drilled in there with a hand drill and struck pus, which poured out of the opening under a tremendous pressure. That man would have died in a few hours if he had not been operated on. That little procedure saved his life. He refused to submit to a radical operation. This was twelve years ago. He is now alive, living in California.

We as general practitioners must understand that it is necessary to interfere when the mastoid cells are involved, and if we are not able to handle cases ourselves we should call in a specialist.

As to the long and short incision: I do not think it amounts to much. I know positively that my patient in a few hours would have died because there was an enormous amount of pus under pressure, and I saved his life. You would be surprised to see how the pus came out of the opening made, which was not larger than a knitting needle. I enlarged it, and packed it with gauze, and the gauze did nicely, notwithstanding the adverse criticism that gauze does not drain. I am satisfied that a radical operation would have cured that patient in a short time.

DR. J. D. LEWIS (Minneapolis, Minn.): I want to show you a roentgenogram of a case of acute mastoiditis a little later on. Unfortunately it was broken.

I believe from what has been said, particularly in the paper of Dr. Johnson, which has covered the point which should be emphasized, that you have all been fully repaid for the time you have spent at this meeting in hearing that one paper.

There is a great deal to be said, and I shall be brief. In the first place, we are no longer doing paracentesis, because it does not provide adequate drainage. That is not good surgery. You would not resort to it in any other part of the body to evacuate pus. The larger the incision you make in the drum the better, because you never get perforation from the incision. In fact, that is what you try to prevent after you have made the incision. It is no use making a cut, but if you make



a good free incision it will enable the pus to escape.

With reference to the bacteriology of these cases: it seems to me that has been neglected, not only by the essayist, but in the discussion; and it is extremely important. If you have streptococcic infection there is no use in delaying operation; you might as well open the mastoid. The patient is not going to get well simply by removing pus from the external auditory canal. There you may get the skin saprophytes.

Another point: a profuse and persistent discharge from the ear means that the capacity of the middle ear is not sufficient to supply that; therefore, you are safe in assuming that the mastoid drum is involved.

Leukocytosis is an important symptom. A blood-count is also important. Dr. Smith said you do not get leukocytosis in furunculosis, while Dr. Hohf said we do get leukocytosis in furunculosis sometimes.

Another point I wish to emphasize is the röntgenograms in these cases. I will show you a röntgenogram of a large cyst, which was diagnosed by a röntgenologist. When you get it, it is infallible, because the symmetry of the mastoid cells in each particular individual is very exact. So if you get a foggy mastoid on one side and a clear one on the other, the mastoid is involved, regardless of the other symptoms.

As regards the incision: it is unimportant. It does not make much difference whether you make a large or a small incision. I agree with the speaker who said that if it is necessary to enlarge the incision you can do it and remove the pathologic condition, and that is sufficient time to do it. But the delayed healing in these mastoid cases is due to the fact that the zygomatic cells have not been examined. These zygomatic cells have been determined accurately. Supposing you have an incision here (indicating on black board) and you will find these cells are diseased, you are assuming you have done an exenteration. Here is the pathologic condition (indicating), because the discharge continues; the zygomatic cells are infected. The patients I have operated on have mostly been patients previously operated on by general surgeons, who can do a mastoidectomy quite as well as some otologists.

With reference to children: I heard one surgeon say to make the incision close to the ear. That is a terrible mistake, because in children the facial nerve is very superficial and very close, and you must not make the same incision in children that you do in adults. If you do you will cut the facial nerve.

With regard to using a burr: the burr has been generally abandoned both in the radical mastoid operation and in simple mastoidectomy, for the reason that the burr forces into the bone fragments of diploë, which must slough out later. It is not good surgery, and the surgeons whose technic have become more and more refined find it unnecessary to use it.

With regard to opening the dura and the tegmen tympani: that is not a dangerous procedure. You have no trouble except if you curette through a small opening you will not get adequate drainage. If you make a small opening, you enlarge it, and pack it with iodoform gauze for the purpose of affording drainage.

With regard to drainage: it does not seem to make much difference whether you use a tube or gauze. In our clinical cases at the City Hospital, some use a rubber tube and some use gauze; and it does not seem to make much difference. Personally, I prefer the tube

for mechanical reasons. Here is an opening; if you use gauze you plug it. With a tube, you do not. I believe the use of a tube is better practice.

When it comes to diagnosis we never hear of or see a death-certificate signed *mastoiditis*. Meningitis is given as the cause of death, but this is caused by the mastoiditis indirectly.

With regard to the blood-clot dressing: I believe the consensus of opinion is against that. It does not strike me as being good surgery.

I would like to ask Dr. Parsons if, after exenteration by the Denker operation in a case of empyema of the maxillary sinus, even though he removed every particle of pathologic conditions, he would close that up and let it fill with blood-clot. If he did, I would like to tell him what would happen. These blood-clots would infect. I can see no advantage in the blood-clot.

The doctor says that healing takes place in these cases in from one to three weeks. Very rarely does a properly executed mastoidectomy continue for three weeks without healing. In two weeks they are dry.

DR. PARSONS: I said we saved from one to three weeks' time in healing.

DR. LEWIS: They all heal in three weeks. If the wound does not heal in three weeks you have not removed all of the pathologic condition. If these cases do not heal in from two to three weeks we have not done a proper operation.

With regard to what was said about Politzer not operating on one symptom alone: I will say that statement must have been made prior to bacteriology, serology, and röntgenology. It would not hold true today.

Dr. Smith spoke of the use of an autogenous vaccine in these acute cases. I wish to say that there is absolutely no clinical or scientific basis to warrant such a statement. Autogenous vaccines are contra-indicated in acute cases. There is only one autogenous vaccine that is effective in a case of discharging ear, and that is in the chronic cases and when you have pure staphylococcic infection. No other bacterial autogenous vaccines will give the slightest effect. We have worked that all out thoroughly, and no one would think nowadays of using an autogenous vaccine in an acute disease. There are no clinical or scientific data for that treatment.

DR. A. E. JOHNSON (closing on his part): I wish to compliment Dr. Putnam on his plea for opening the ear drum and letting out pus. That procedure will save some patients from undergoing a mastoid operation.

The other points have been so well covered I have nothing further to say.

DR. F. I. PUTNAM (closing): I enjoyed Dr. Hill's discussion of my paper, and he is absolutely right in bringing out some of the salient features, particularly the bulging of the superior-posterior wall, which indicates a mastoid operation.

I do not disagree with him about making a small incision, although I believe in making a large incision. I believe in making an incision from above the posterior wall down to the tip of the mastoid, laying the ear over the face and getting plenty of room to operate in.

In his remarks Dr. Miller made the statement that the use of the curette in these cases is all that is neces-



sary. I do not agree with him. There is nothing to it. One might as well leave the patient alone.

Dr. Alway tells us not to wait for the bulging of the superior-posterior wall, and he is absolutely right. The title of my paper is "Suppurative Mastoiditis: A Surgical Emergency." We have suppurative mastoiditis without bulging. That symptom is not always present.

As far as the blood-clot is concerned, I think Dr. Parsons is right, although Dr. Alway does not look upon it favorably. There are a thousand members of the American Academy of Ophthalmology and Otolaryngology, and Dr. Parsons read an able paper before the Academy in Chicago last October, and the use of the blood-clot was sanctioned by some of the best men in the North, the East, and the Southwest. We do not want to make an incision and establish drainage at the back of the ear; that is not the right way to clear up the mastoid. We exenterate, get rid of these mastoid cells, fill it in, and have drainage from the tympanum out through the meatus. If you have pressure you can make a puncture and let out the clot, but Dr. Parsons does not have that.

I cannot agree with Dr. Parsons as to the use of an ice-bag. The use of an ice-bag is a very poor procedure. The general surgeon who is called to see a case of belly-ache does not give the patient morphine and mask his symptoms of appendicitis, and why should the otologist put on an ice-bag and mask the symptoms in the mastoid cells?

Dr. Roost does not think the comparison between

appendicitis and mastoiditis is a very good one, but they are quite the same. He makes the statement that in a week's time the wound in a patient after an operation for appendicitis is pretty nearly healed. After an aural operation for a suppurative condition we let the patient get up the next day, and go home the second day.

He referred to not curing the patients, and that nature cures them. That is true. The surgeon tries to assist. Sometimes he does, and sometimes he fails to assist nature.

Reference was made to the number of mastoid operations performed today as compared with those done fifteen years ago. I think mastoid or aural surgery has changed materially; it has improved a great deal in fifteen years. Fifteen years ago abdominal surgery was not quite as advanced as it is now.

As to Dr. Smith's differentiation between furunculosis and mastoiditis: it should be borne in mind. It is simple, and the differentiation is quite distinct if you study furunculosis apart from mastoiditis.

One thing I have avoided is getting into the superior fossa, because the patient may wake up when you are reaching something there and getting into dangerous territory. The tegmen tympani should not be opened into if you can avoid it. It is all right if you should open into the lateral sinus; it does not hurt a great deal.

The principal point I wanted to bring out can be stated in five words, "suppurative mastoiditis: a surgical emergency."

## TRANSPLANTATION OF BONE IN FRACTURES\*

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The transplantation of bone has become a well-established surgical procedure. From a practical point of view it is important to know whether bone taken from a different species (heterogenous) will graft successfully. That it is possible is shown in the reports of Merrem,<sup>1</sup> Flourens,<sup>2</sup> Wolf,<sup>3</sup> Ollier,<sup>4</sup> and others. That foreign bodies may heal permanently in living tissues is also an established fact. Gluck,<sup>5</sup> Bircher,<sup>6</sup> and König<sup>7</sup> have recorded the successful replacement of bone by ivory. It is generally conceded that grafts from a different species act merely as a scaffold for new bone to grow in from either side or from the end of the defect to be filled in. It is important to know whether bone from the same species but different individuals (isogenous) offers patients the same maximum chance for successful transplantation. Recent experiments along this line

are very interesting. Phemister<sup>8</sup> says that bone from animals of the same species, though of diminished power, acts as bone from the same animal, and that bone from a different species acts as dead bone or foreign material, tending to be absorbed. Davis and Hunnicutt<sup>9</sup> believe that bone obtained from the same species when placed in a bony defect in another animal is absorbed. The graft acts as a scaffold for the bone to grow in from the living bone, but in fractures a shortening always results.

That which chiefly concerns the surgeon, however, is the fate of the bone which he transplants when obtaining bone from the same individual (autogenous transplants). Does it live as a whole or a part? Does it die to be replaced by new bone, acting merely as a scaffold? Phemister<sup>8</sup> maintains that the bone-cells near the periosteum and endosteum readily obtain nourishment and live; the deeper bone-cells, being surrounded by a calcified matrix difficult to permeate, do not so readily obtain their nourish-

\*Read before the Chicago & Northwestern Surgical Association at Rochester, Minn., December 10 and 11, 1915.

ment and thus undergo necrosis and absorption. It is then demanded by these surviving cells that they build more bone if the transplant is placed in a bony defect and is to have a function to perform. These surviving cells do not usually reproduce bone if the transplant is placed in the soft tissues. Davis and Hunnicutt say that bone transplanted (autogenous) into soft parts is absorbed, but when transplanted into bony defects lives and becomes a part of the first, tending to take the shape of the bone in which it is transplanted.

On the other hand, Gallie's<sup>10</sup> work seems to show that there is complete death of the graft.



Fig. 1. (96248) Non-union in humerus of 14 years duration. Note the normal density of the fragments.

Though, clinically, this is a little difficult to accept, Gallie could see no difference between fresh or boiled bone, nor could he see any difference in the gross and histological change incident on the introduction of autogenous and heterogenous bone-grafts.

Practically all are agreed that bone should be obtained from the same individual, and that all layers of bone should be included in the transplant. Probably no one constituent of the bone has everything to do with bone-regeneration. Opinions differ as to the relative importance of the periosteum, but no one has been able to repair a bony defect by the use of periosteum alone.

In the main the use of bone-grafts in fracture work has been limited to cases of delayed union. That it is applicable to most of the recent fractures needing operation there can be no doubt;

and it will secure for itself a permanent place in our armamentarium. That the bone-graft will, in all cases and under all circumstances, preclude the use of metal plates is not likely. Albee<sup>11</sup> is using the transplants in recent fractures with success. In some cases of fracture it is necessary to cut down on the fragments to obtain correct alignment. Whenever practicable the manufacture, as it were, of a splint from the patient's own bone to maintain position, is preferable to any other means. The maintenance of correct alignment in recent fractures requires a splint of relatively little strength. This is not



Fig. 2. (96248) Firm union three months after operation.

the case, however, in many delayed unions in which there is present much muscular traction. It is in this type that the metal bone-plate will probably be of the greatest service.

Cases of delayed union present a difficult problem. The fact that in most cases there will be union after many months of waiting does not mean that the patient's convalescence should not be shortened if it can be done by the transplantation of bone. One point of importance in these cases is the selection of the time for operation. Usually the affected part will have been kept at rest in a plaster-of-Paris cast for some time. The normal density of the bone will have been reduced, the Röntgen ray showing a lack of lime salts in the fragments. If use or exercise has been permitted, this porosity will have decreased, and the bone will be in much better

condition to respond to attempts to induce union. It would seem as if, after nature had put forth her first vigorous attempt to obtain union and failed, the bone-forming properties of the fragments are below par. Some of the failures in bone-transplantation can, I think, be accounted for by this condition. By this I mean that, generally speaking, union is easier to induce in a true pseudo-arthritis of years' standing than in a case of delayed union of a few months' duration if during this time the limb has been incased in a plaster-of-Paris cast or brace so that the bone has not been called upon to functionate. Lack of use tends to decrease the bony salts, which are so necessary to obtain union. The



Fig. 3. Plaster-of-Paris spica cast for fracture of the humerus.

following case shows the rapid response in an old non-union:

**CASE.**—A man, aged 45, presented himself with a non-union of the middle and lower third of the right humerus of fourteen years' duration. He came because of musculospiral paralysis, which had appeared gradually a few months before. All hopes of having the fracture repaired had been given up, two attempts having failed. We transplanted bone from the tibia by the inlay method. Union was apparently complete in five weeks, and firm enough at the end of fourteen weeks so that the man could do manual labor. The musculospiral had completely regained its function at that time. (Figs. 1 and 2).

There are, generally speaking, two methods of using the bone-graft in fractures: (1) the intramedullary method as used by Murphy,<sup>12</sup> and (2) the inlay method as advocated by Albee.<sup>11</sup> Both methods are good. Murphy has shown and reported excellent results with the former; in

our hands the inlay method has given better results, and seems to be the more anatomical procedure. When a piece of cortical bone is placed in the medullary canal, it is in a field abnormal to itself. In that situation it is a foreign body, and, being absorbable, is gradually removed, but during its stay osteogenesis may be incited by bringing more blood to the part, just as the ivory plug as used by C. H. Mayo, acting as an irritant, led to union in these old ununited fractures. Using the transplant as an inlay, the bone is placed in a bed which is normal to it. The periosteum approximates the periosteum; the cortex, the cortex; and the endosteum, the endosteum. Here we have reason to expect that the graft will quickly take on nourishment and carry out its function. Statistics in my cases do not permit a fair comparison of the two methods, for most of the operations have been done by the inlay method and after the technic as a whole had been improved. No method, however, gives positive assurance of success, and I have had failures by both methods.

It may be well to say a few words as to the best method of obtaining the graft. The tibia is a most convenient place. It may be obtained from the crest, but to this there are certain objections:

First, the crest is the apex of the triangle of the tibia and is the strongest part of the bone. The graft obtained here weakens the leg out of all proportion to the size of the bone removed, and early weight-bearing may lead to fracture.

Second, the bone here is very dense and hard, and does not so readily take up nourishment.

Third, this position is a little difficult to expose or to pull the muscle to the outer side in order to use a saw or chisel.

The flat internal surface of the tibia offers none of these objections and is readily accessible to either the chisel or saw.

The transplant may be lifted out of the tibia by the chisel or the saw, the saw being the quicker method. There are two types of saws: the motor with a flexible shaft by which the motor is kept entirely out of the operative field; and the motor which is readily sterilized by dry heat or may be covered with a sterile metal case so that it can be introduced directly into the operative field, the saw being driven by a direct drive. As applying to both these motors, it might be said that a too powerful motor is not desirable: Also, the saw should have fine, short teeth rather than long teeth. This prevents any ex-



cessive gripping of the bone and consequent loss of control. The saw, however, is not essential, as careful chiseling entailing probably five more minutes to the operation will suffice for the removal of a graft of any size.

In certain situations, particularly the tibia, the graft may be obtained from one of the fragments and moved down or up as an inlay.<sup>13</sup> The same plan may be carried out in fractures of the other long bones, but I cannot urgently recommend it. The fragments are usually below par, and the bone thus obtained more sluggish. Transplantation of the devitalized bone is not so apt to bring about union, and, unless the graft can be obtained far enough away from the fractured ends to insure normal bone, it would be better to obtain normal, healthy, strong bone from one of the tibias. Because of the large incisions and the amount of manipulation of the muscles necessary, that is, in the radius, ulna, humerus, and femur, this sliding inlay method should not be the method of choice. This objection does not hold good in the subcutaneous tibia. Here very little trauma to the muscles results.

A bone-graft properly placed and nourished will undoubtedly resist some infection; but its use should not be advocated in compound fractures. Occasional "takes" will result, but the majority will die and be cast out as sequestra. If infection is already present when the graft is introduced, a higher percentage of "takes" will result than if the graft is introduced into a clean field which becomes accidentally infected. In the first there is a previous immunity, as it were, whereas in the latter there is none.

Proper postoperative fixation must be provided, and plaster-of-Paris cases are probably the most convenient. This fixation is easy enough to obtain in all but cases of the humerus, in which it is best obtained by including the wrist, elbow, shoulder, and thorax. The wrist should be held somewhat in extension, thus relaxing the extensors of the forearm and the elbow in flexion across the trunk. This is particularly desirable in musculospiral paralysis, as non-stretched or relaxed muscles more readily regain their power when the nerve impulses are able to get through. The photograph (Fig. 3) shows one of these plaster-of-Paris casts applied for fracture of the humerus.

Accurate fitting of the graft in the bed prepared for it is essential. Lewis<sup>14</sup> has called attention to the necessity of procuring perfect hemostasis. The presence of a blood-clot between the graft and the bony bed in which it lies prevents the nourishment of the transplant. This clot stops any transfusion, as it were, of the serum into the graft. The clot must first be absorbed and gotten out of the way, and this delay may mean the death of the transplant. The graft must be of sufficient length. By that I mean it is most important that it should extend well up into the healthy bone of the fragments. If we are satisfied with a short transplant and contact only with the devitalized fracture-ends, even though the contact is good, our percentage of failures will be high. In my experience transplants thus placed have absorbed, and non-union persisted. Union was then secured by larger and longer grafts.

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## LOCAL ANESTHESIA\*

By L. E. DAUGHERTY, M. D.

SAINT PAUL

The use of local anesthesia is becoming so extensive, and it is employed in so many surgical operations of the present day, that a consideration of its proper use is important. There are at the present time very few operations which cannot be satisfactorily done under local anesthesia; and it was primarily the consideration of the patient that lead us to employ it. We believe that the results have justified the means. They certainly have done so from the patient's point of view; and, if in any case the patient has suffered pain, the fault has not been with the method, but rather with a mistaken technic in its administration.

Novocaine was introduced by Einhorn, in 1905. Its use did not become general until sometime later, probably because some scepticism was felt by the medical profession as to its ideal properties. Many attempts have been made to find a substitute for cocaine,—a substitute which would possess its virtues and which would not be toxic or dangerous. The remarkably favorable action of adrenalin in combination with novocaine was a further step in advance. And here for the first time chemical agents were found which were ideal. The toxicity of novocaine is said to be from one-fifth to one-seventh that of cocaine, but a rather extensive employment of this agent has led us to believe that when properly used there is no danger of toxemia. We have used as much as 250 cc. of a one-half of one per cent solution in a single case, and have failed to note any symptoms which would indicate poisoning. It can be readily sterilized by boiling without changing it chemically; it has a mild antiseptic action, and has no effect on the healing of the tissues. It may be kept for some time in solution without materially suffering any change in its action—just how long we cannot say—and as a precaution fresh solutions are always used. When exposed to light for any length of time the solution assumes a yellowish tinge, and some of the English cases of mild toxemia were due to this colored agent. It is possible that some people possess an idiosyncrasy for this drug. We have not seen such a case. Braum has come to the conclusion that novocaine increases the action of adrenalin,—certainly does not arrest or weaken it. Its use

in nose and throat operations and in ophthalmologic practice where it is used for purely topical applications in concentrated solution, has not been satisfactory, probably because sufficient time has not been allowed for its absorption. Indeed the element of time causes more failures than any other mistake in its administration. It is necessary to wait at least ten minutes after an injection of novocaine and adrenalin before its anesthetic properties become complete. This element of time is an important one; work under local anesthesia cannot be hurried. We have frequently made the mistake of beginning to operate too soon after its administration. If this is done, and the work becomes painful, the confidence of the patient is lost, and the whole purpose of the procedure is defeated. It is probable that in large clinics, in view of the increased time required and the amount of attention necessarily bestowed on the patient, operations under local anesthesia will not become popular.

The question of shock is, or should be, an important one to the surgeon, and it is too often carelessly disregarded. It is not our purpose to enter into an extended discussion of shock. Crile and Lower have in their admirable work on anoci-association conclusively proven that definite pathological changes take place in various organs of the body, particularly the brain, and that these changes are due to shock. The two most important elements which produce shock, are emotion, such as fear, and trauma, from any cause.

It was in an endeavor to eliminate the first cause of shock (fear) that we made use of local anesthesia. By carefully questioning the patients who have been operated upon, or are about to be operated upon, we found that what they most feared was taking the anesthetic and the loss of consciousness. Those of you who have been anesthetized will know what that fear is. So far as the operation itself was concerned, the patients, as a rule, did not fear it. They knew that they would feel no pain because they would be asleep, but what they did dread was the anesthetic with its consequent loss of consciousness. Question your patients carefully and you will find that there is a period in their anesthesia that is looked upon with dread and fear. Here, then, we are beginning a surgical procedure with the very thing that we wish to avoid,—one of the

\*Read at the 29th annual meeting of the North Dakota State Medical Association at Devils Lake, May 10 and 11, 1916.

emotions (fear) and one of the most potent elements in the production of shock. We are apt to forget that the operation, which to us is a matter of the day's work, is of tremendous and shocking importance to the patient. Why are patients anesthetized on the operating-table? Is it because it is handier, more convenient, and time-saving for the surgeon? Or is it in any way in consideration of the patient? We should remember that the operating-room, with its various appliances and strange atmosphere, does not look the same to the patients that it does to us. To them it is a strange, unpleasant place, and certainly the element of fear is present in a great degree, although many brave attempts are made to control it. Where local anesthesia is used, fear is largely lacking because they know that they are not going to lose consciousness and that they can talk to the operator. It has also become the fashion to strap a patient's hands and feet before administering anesthesia. This in itself is not reassuring; and, while it is old to us, it is new to the patients, and, to say the least, is a very unpleasant sensation.

We cannot refrain from mentioning here an added trauma where general anesthesia is used. The modern operating-room table is made for the convenience of the surgeon; certainly the comfort of the patient has not been considered. Many patients have complained bitterly of their backs, particularly in the lumbar region, following a prolonged laparotomy; in fact, oftentimes the pain is so intense in this region that the distress from the operation itself is forgotten. It is not pleasant to think that this could easily have been prevented. This is nothing new; our attention has been repeatedly called to the back-strain, but we are apt to forget. This does not happen when local anesthesia is used, for the patients tell us when they are uncomfortable. We do not tie their hands or strap their feet, and they assume a comfortable attitude on the table.

Gentleness in handling the tissues is of prime importance where local anesthesia is used. If not remembered, failure will result. It is too often forgotten where general anesthesia is employed. The modern retractors are good examples of trauma-producing instruments. Our double mechanical instruments, by which traction is made in a lateral direction and the muscle and tissues are kept in a strained, tense condition, cannot be used in a local anesthesia, for they would cause too great an amount of pain and distress; yet

they are constantly used where general anesthesia has been administered, and they are unquestionably one of the many elements entering into the production of shock. Gentle traction in a longitudinal direction is preferable. It can be used, and by exercising a little more patience and taking a little more time the same work can be done. Introducing foreign bodies into the abdominal cavity, such as the large saline pack should be used only when absolutely necessary. Our work in local anesthesia has shown us that the visceral peritoneum and the intestines and stomach can be gently manipulated, and can be traumatized with impunity without causing pain, provided no traction or pull is made on the mesentery. We are apt to forget the element of trauma in a production of shock where general anesthesia is employed. We cannot forget it where local anesthesia is used.

Pain is a relative sensation, and differs in degree in different people; or perhaps it would be more correct to state that the ability to control pain differs. It is difficult to tell which patient will submit to the very slight degree of pain attendant when using local anesthesia. Some of the most nervous, excitable patients appear to stand pain well. On the other hand, strong robust people are apt to lose control of themselves under the slightest provocation. Dr. MacLaren recently operated on a nervous, hysterical girl for the removal of the thyroid. Every puncture of the skin for the formation of a weal was accompanied by a scream; yet she complained of absolutely no pain after the injection was completed except to state that the muscles of her neck felt uncomfortable because of the position of her head.

It is hardly necessary to mention the unpleasant and disagreeable after-effects of ether anesthesia. Its attendant nausea and vomiting are distressing, and a number of times patients have consented to operation only on condition that local anesthesia be used. We recall one woman early in our experience with local anesthesia who had vomited and strained so much after two previous laparotomies that her stitches had given away, and large postoperative hernia resulted. A third time we operated under local anesthesia and repaired the hernia with absolutely no pain, and obtained a good result.

The preparation of the patient for local anesthesia is important. The administration of a mild narcotic the night before the operation assures them of a good night's rest. They are



given their breakfast in the morning and a hypodermic of morphine before going to the operating-room. We do not believe in active catharsis as a routine measure, although in certain cases it is indicated.

The European war has caused a temporary scarcity of novocaine, which is manufactured in Germany. Attempts have been made to replace it with quinine and urea, which has many qualities to recommend it. Its non-toxicity and its long period of anesthesia, sometimes lasting ten days, are in many cases to be desired. It does, however, produce a secondary indurative reaction in the tissues, due to a fibrinous exudate, which is dependent in a general way upon the concentration of the solution. This induration is a serious drawback in aseptic operations in which primary healing is desirable.

We have not used scopolamine in combination with morphine because of the uncertainty of its action. If it is given in large enough doses to produce stupor it is dangerous. As early as 1905, Wood was able to collect 2,000 cases in which it was used. There were nine deaths, or one to 221, which is a frightful mortality. Some operators use it in small doses with apparently no ill effects; but at the best it is an unstable drug, and an added risk.

When novocaine and adrenalin are used, care must be taken to carefully ligate all small bleeding vessels. If this is not done a secondary hemorrhage is apt to result.

The instruments used for local anesthesia are important if success is to be obtained. We prefer a small hypodermic needle to form the initial weal in the skin. After this a large syringe, similar to the one used in the Heidelberg clinic, is employed. Most of the needles used are too large. The formation of one weal will often suffice, because others can be formed by passing the needle under the skin to the second and third point and injecting intradermally from below. It is better to personally superintend the sterilization and preparation of the solution, and to add the adrenalin yourself.

The technic of its administration differs in different localities, and is given in detail by a number of authors. It is not difficult to follow and, if it is correctly carried out, success is certain. A correct understanding of the anatomy and particularly the nerve supply is necessary, for nerve-blocking plays an important part.

The anesthetizing of large nerve trunks is not difficult. Here stronger solutions are used,

usually about 2 per cent. Kulemhampff has used this method hundreds of times for injecting the brachial plexus where it crosses the first rib above the clavicle. The subclavian vessels lie very close to the plexus at this point; but, provided a fine needle is used, which is not attached to the syringe until the nerve is found, no fear need be felt. He reports having punctured the subclavian several times with no apparent ill effects. For dislocations of the shoulder and all operations upon the forearm and hand, the method is satisfactory.

Lerda and Quenu have used local anesthesia repeatedly for the reduction of fractures and dislocations with excellent results. The solution is injected usually into the site of fracture or into the joint.

We have used local anesthesia in so many cases with such good results that we feel it is the method of choice, and not of necessity, in certain operations. In goiters, hernias, rectal operations, operations on extremities, operations for the removal of tumors on the surfaces of the body, suprapubic cystotomy, and operations on the head and scalp, it should, and can, be employed with success. In fact, judging from our work, if it was necessary for us to submit to any of the above operations we should insist on its use.

#### DISCUSSION

DR. V. J. LA ROSE (Bismarck): Dr. Daugherty has covered the subject of local anesthesia so thoroughly I don't know of anything more I could add to it. We have used local anesthesia in our work in Bismarck for some years and in all kinds of major surgery, and we cannot do any more than to emphasize some of the points Dr. Daugherty has made.

As to its toxicity: I do not know of any case in which we have ever noticed toxic symptoms. We use a one-half of one per cent solution, and also one-quarter of one per cent solution. The one-half per cent is used for skin, region of nerve trunks, and peritoneum. In going through the muscles, we use one-quarter of one per cent and for the general infiltration.

As to time: we endeavor to allow a little longer than ten minutes. Twenty to thirty minutes give a complete anesthesia. We have in some cases injected the patient before we have taken him to the operating-room, and the patient was then brought to the operating-room and prepared for the operation without waiting and loss of time, thus sparing him the nervous apprehension of a long wait in the operating-room.

Another thing Dr. Daugherty has emphasized is the handling of tissues. One who has used local anesthesia a great deal is bound to develop a delicate surgical technic. The technic is so different from that where we use a general anesthesia that the comparison is remarkable, and I believe that once this technic is

developed the delicate handling of tissues serves to encourage more rapid healing and less after-pain.

We notice some of the cases have rather a distressing or dull ache after local anesthesia, but, as a rule, it is not very severe, although in a few cases we have found it necessary to give a hypodermic of one-eighth or one-sixth of morphine, especially if the patient is a little restless.

DR. CHARLES DORNIN (Westhope): I would like to ask in case of abdominal operations, say a case of a bad appendix, where you have an appendix in a dense mass wandering here and there among the intestines, with what success would you handle that under local anesthesia?

DR. DAUGHERTY (closing): I am sure that Dr. La-Rose is right when he says we should use weaker solutions and more time. I am certain that one-quarter of one per cent can be used many times where we use one-half of one per cent, and I am also certain that he is right when he says that we should wait longer than ten minutes after injecting. The temptation is to begin to operate too soon, and the idea of injecting the patient before he goes to the operating-room is one that we have used several times, and it is an excellent one, and I believe it should be used more. Most all of the cases that we have operated on have come to us requesting local anesthesia. We have not urged them to be operated on under local anesthesia; they have talked with people who have been operated on and so request it.

Most of our goiter patients have not been given general anesthesia. We have used local anesthesia in all these goiter cases, and it has been very satisfactory, both from the patient's point of view and from our point of view. They have no distress after the operation and practically no pain, and they all become quite enthusiastic about it; and if they have any further operative work to be done they come back requesting local anesthesia be used, especially those who have had both ether and local anesthesia.

The Doctor asked about acute appendicitis cases. Local anesthesia is not successful in acute inflammatory conditions as a rule, and we do not use it in those cases. We use it a great deal for abdominal operations. We have done quite a number of gall-bladder operations. The gall-bladder can be removed, and the appendix can be removed, providing it is not as difficult to find as the doctor stated.

DR. H. H. HEALEY (Grand Forks): We have had practically no experience with the local anesthesia. I know that we should use it more than we do. We have done none of our major work, merely the minor work that we had in the office.

DR. J. L. DEVINE (Minot): I think the Association is to be congratulated today upon being able to have Dr. Daugherty present his paper. I had the pleasure a few years ago of observing some of Dr. Daugherty's work, and his remarks and conclusions in his paper are very conservative, indeed. I have seen the doctor and his associates do a great many operations, and among them the majors he has mentioned. I talked with the patients afterwards, and they all said that they would have it done over in the same way if they were to have the operation repeated, and I want to substantiate what Dr. La Rose has said, that it makes a man more careful in his surgical technic and certainly avoids bruising the tissues.

## BOOK NOTICES

THE UMBILICUS AND ITS DISEASES. By Thomas S. Cul-len, Philadelphia: W. B. Saunders Company, 1916.

This work comprises a consideration of the embryology, anatomy, and diseases of the umbilicus, together with diseases of the urachus. It is illustrated by Max Brödel.

The author was stimulated to undertake this work through a desire to find the source of primary adenocarcinoma of the umbilicus. In searching the literature he was struck by the multiplicity of abnormal conditions which exist in this region and by the fact that many of them are not well known. He wisely concluded that it was advisable to have all of the available information gathered together and sifted. This masterly monograph is the result of his prodigious work in going through the copious but almost hopelessly scattered literature on these subjects.

The work gives evidence of most careful and painstaking effort to gather and study the literature. Not satisfied with collecting the information stored up by the work and experience of others, the author has supplemented this knowledge with much original work.

It is useless to attempt abstracting in a short review this book of about 700 pages. It is a splendid addition to medical literature and the author has undertaken to bring together only those things regarding the umbilicus which are not already systematized.

The book contains wonderful illustrations by a master of medical art. The index is ample, and the bibliography is extensive.

Anyone who wishes to increase his knowledge of this region of the human body will be amply repaid by a study of this volume.

—ADAIR.

# THE JOURNAL-LANCET

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## THE POLIOMYELITIS SITUATION

Late reports of the Minnesota State Board of Health office and of the independent local boards of health in Minneapolis and St. Paul, show there has been no appreciable increase in the number of cases of infantile paralysis. The alarm which spread over the country so rapidly and involved the Twin Cities has subsided very materially as shown by the fact that on Labor Day and Children's Day at the Minnesota Fair the attendance almost reached a record point. This was very good evidence that the people were fearing the infection less than was supposed by the lay press, and although the majority of children and adults attended the Fair by the way of crowded street cars and crowded and over-heated trains, there was nothing alarming about their attitude.

In spite, too, of the suggestions of the State Board of Health that the public schools of Minneapolis delay their opening for two weeks, the Board of Education, with one strong exception, decided to open the schools as usual, and the medical inspectors made an examination, *in one day*, of all the pupils in all the schools, that is, presuming that the lay reports are true. Very naturally, the inspection was a very superficial and casual one in most of the schools; and in

some of the schools it was conducted entirely by the visiting nurse and the gymnasium teacher. This sort of hurried inspection, of course, is not very satisfactory, to say the least, but it did develop that some of the children had other illnesses, such as colds, sore throats, and other minor complaints; and they were excluded from attendance until they had been reported upon by the family physician or had been seen at their homes by the school physician and nurse. St. Paul delayed the opening of its schools for two weeks, very wisely, we think, and probably without the slightest harm to the future education of the child. The fact of the matter is, that boards of education nowadays are crowding more and more upon the welfare of the child, as shown by an increased number of hours of attendance in schools, beginning at 8:30 and closing at 3:00 or 3:30, with a very short recess for luncheon. This seems to the average medical man a senseless wrong, which will ultimately show to the detriment of the child; but, if boards of education are not willing to accept expert advice, we can expect no less than an attempt to over-educate and crowd a delicately growing nervous system. In the end the child will show physical and mental depreciation.

This, of course, has nothing to do with the question of poliomyelitis; but, as that is one of the diseases which we must continue to fight for years, one must take all of these factors into consideration. Doubtless the board of education believes that during the summer vacation children have had all sorts of opportunities to regain lost health, if they have suffered from any disorders, or have recuperated to such a degree that they will stand any sort of nervous insult; but the fact remains that during the hot weather infantile paralysis flourishes, other diseases are prevalent, and, when the children enter school, a majority of them have a lowered resistance, and consequently are more susceptible to contagion, and are more likely to come in contact with quickly carried diseases.

The Minneapolis Health Department found no cases of active poliomyelitis during the day's examination. How could they? Even if they did, would it have made any material difference to the exposed child? The presumption is that it would—that there is no justification in the exposure of any child to such a serious disease as an infective poliomyelitis. Very few physicians at the present time would fail to recognize a poliomyelitis case with paralysis, particularly if



it was frank and objectively present, but the larger number would fail to appreciate the abortive types, because no paralysis exists, and a still larger number would entirely pass over the suspicious forms of the disease.

There are many discouraging features in handling a situation of this kind: first, because the people at large consider it a new disorder; and, second, because there is an attempt in many families to conceal minor illnesses, or least to pay no attention to them. People evidently seem possessed of the idea that things that look insignificant can be comfortably neglected; but when poliomyelitis spreads over a city or state, as it has in Minnesota and elsewhere, it is very necessary that the utmost care be given to every case with any kind of complaint until the diagnosis is unquestionably settled, and it does no harm to isolate such people from others on general principles, and, specifically, it does the individual a vast amount of good.

It has been found necessary to urge physicians throughout the state to lengthen the period of quarantine, not only in frank cases, but in abortive cases, and all such cases should be quarantined the full time of six weeks. The suspicious cases can be disposed of in two weeks without harm. On the whole, the situation has improved, and there is less concern and less fear among the population; and within two or three weeks there will probably be a very much lessened number of cases, but our fears and our vigilance should not cease when the epidemic subsides, for there is always the question as to how long it carries over, and whether it might not go into the next season with the same possibilities of infection and the same recurrence of epidemic. To this end the State Board of Health is looking forward to ways and means to prevent such a recurrence.

From the point of view of the medical profession it can be safely said that the epidemic has been handled in a masterly manner notwithstanding the criticism of the newspapers, and the physicians are to be congratulated on their recognition of the majority of cases. Of course, instances occur wherein the disease is not recognized, but that is true in every other disease.

One other very important consideration in connection with poliomyelitis is the after-care of these cases. It has been suggested, and will be urged, that the children of the poor who are unable to carry on an extended line of treatment, be put under the supervision of a reputable physician and an expert masseur, and it has been

further suggested that the cost of this be maintained by some one individual, that is, that one individual support and carry through one case of poliomyelitis. One of the representative women of Minneapolis who had a case in her own family years ago has followed out this method of relief, and each year has gone into the poor districts and provided for the care of one case of poliomyelitis. If an appeal for such support should be made through the lay press, and the suggestion put up to them, it is believed that the response from people of means would be prompt, and that those children who had a prospect of recovery would be amply provided for.

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#### DR. JOHN B. MURPHY

We all remember with great interest the address of Dr. John B. Murphy on bone surgery before the Minnesota State Medical Association which met at the Unitarian church in Minneapolis in 1910. He certainly was at his best on that day, and he delivered one of his forceful and instructive papers. He received the most hearty and vigorous reception that could be accorded any man by a medical audience, first, because of his eminence as a surgeon and as a speaker, and, second, because so many of his audience had either been his students or had frequently visited his clinics in Chicago.

Dr. Murphy had a wonderfully attractive personality, and he drew all men toward him by his brilliancy, his hearty words of welcome, and by the fact that he usually knew the men with whom he came in contact. In that respect he had a marvelous memory for faces and names.

It is unnecessary to go into the work that Dr. Murphy has done, because it has become public in literature, but it is of some interest to recall the fact that both Dr. Murphy and the late Dr. James H. Dunn, of Minneapolis, started in their medical careers together, both in Heidelberg and other European clinical points. Each had ambition and each realized the height of his expectancies. Dr. Murphy served the medical profession in many capacities,—as teacher, as the chief-of-staff of Mercy Hospital and of numerous other hospitals, notably the Alexian Brothers Hospital, the Cook County, St. Joseph's, Columbus Memorial, and the Hospital for Crippled Children, all located in Chicago. He has been president of the American Medical Association, was president of the Clinical Congress of Surgeons of North America, and presided at the International meeting in London in 1914 as the

president. He was a member of many other associations of lesser importance, and honorary fellow of many foreign medical bodies. His work and his books and his articles in surgical and other magazines have always been worthy of the most careful consideration. His "Murphy Clinics," which appeared in 1912, had a wide circulation. He had all sorts of degrees conferred upon him, and within a very short time of his death the Pope had made him Knight Commander of the Order of St. Gregory the Great.

It is rather a singular coincidence that when a great man is highly honored and reaches the highest pinnacle in his profession, he so soon afterwards passes away.

Dr. Murphy and his work will be remembered as long as medical literature stands.

## MISCELLANY

PUBLIC HEALTH PROGRAM, RADISSON HOTEL, MINNEAPOLIS, OCTOBER 11, 1916

MORNING PROGRAM—9 A. M.

- I Health Needs in Country Districts (15 minutes)—Dr. E. H. Bayley, Health Officer of Wabasha County, Lake City.
- II The County Sanatoria Opportunities and Needs (15 minutes)—Dr. L. G. Guyer, Associate Medical Director, Advisory Commission, Sunnyrest Sanatorium, Crookston.
- III Making the Home Healthful (Symposium—5 minutes talk each).
  - (a) What the Agricultural Extension Division is Doing—Dr. Mary Wetmore, University Farm School.
  - (b) What the Rural Schools are Doing—Miss Annie E. Shelland, Supervisor, Rural Schools, State Department of Education.
  - (c) What Women's Organizations are Doing—Mrs. W. T. Coe, President, Minnesota Federation of Women's Clubs.
- IV The Recording of Health Data (Symposium—5 minutes talk each).
  - (a) Health Officers' Records—Dr. L. F. Hulsmann, Health Officer, Eveleth.
  - (b) Hospital Records—Miss Lydia H. Keller, Secretary, American Hospital Association, Asbury Hospital, Minneapolis.
  - (c) Sanatorium Records—Dr. A. T. Laird, Superintendent, Nopeming Sanatorium, Nopeming, St. Louis County.

AFTERNOON PROGRAM—2 P. M.

- V Visiting Nurse Work (Symposium—5 minutes talk each).
  - (a) What Windom Does—Miss Alma Johnson, Visiting Nurse, Windom.

- (b) What Albert Lea Does—Miss Alma Wretling, Visiting Nurse, Albert Lea.
- (c) What Mankato Does—Miss A. J. Peters, Senior Visiting Nurse, Mankato.

VI Health Supervision in Schools (Symposium—5 minutes talk each).

- (a) What Virginia Does—Dr. H. E. Michelson, Deputy Health Officer, Virginia.
- (b) What St. Louis County Does—Mr. N. A. Young, County Superintendent of Schools, Duluth.
- (c) What Ramsey County Does—Mr. Geo. H. Reif, County Superintendent of Schools, St. Paul.

VII Sanitation of Swimming Pools—Dr. C. E. Smith, Assistant Health Officer, St. Paul.

VIII Infantile Paralysis—Dr. A. J. Chesley, Director, Division of Preventable Diseases, State Board of Health, Minneapolis.

EVENING PROGRAM—8 P. M.

(Public Health Meeting of Medical Section of the Minnesota State Medical Association)—Dr. G. D. Head, Chairman.

Presiding—President Geo. E. Vincent.

State Board of Health Activities—Dr. H. M. Bracken.

Role of the Visiting Nurse—Dr. I. J. Murphy.

Address—U. S. Public Health Service—Dr. G. B. Young.

## NEWS ITEMS

Dr. L. L. Craven has moved from Deer River to Peru, Iowa.

Dr. Henrietta P. Miller has returned to Cloquet after an extended absence in Ohio.

Dr. W. G. Brede, of Minneapolis, died on September 5 of septic pneumonia, at the age of 40.

Dr. E. S. O'Hare, a recent graduate of the University of Minnesota, has located at De Graff.

Dr. A. J. Moe, who conducted a hospital at Heron Lake for a number of years, is building a large hospital at Sioux Falls, S. D.

A series of monthly conferences of the men and women engaged in city and charitable health work in Minneapolis, has been planned.

Dr. A. J. Kirghis, who recently returned to St. Cloud from work in the French army medical corps, will move to Telstad, Montana.

Drs. J. R. Elsey and E. A. Eberlin, of Glenwood, have purchased a large residence building, which they will remodel for use as a hospital.

Dr. George C. Hanson has moved from Ray, N. D., to Minot, N. D., and hereafter will devote

himself exclusively to eye, ear, nose, and throat work.

Dr. C. A. Fjelstad, who has practiced in Glenwood over twenty years, has moved to Minneapolis, and become associated with Dr. J. R. Petersen.

North Dakota is conducting a campaign for the registration of births and deaths. Four Mandan physicians were fined last month for failure in this matter. Registration will be universal when physicians see the importance of it.

A clinic was given at the University of Minnesota on September 5 for school teachers, school nurses, public health officers, and physicians especially interested in stopping the spread of infantile paralysis. The attendance was over three hundred.

The Midway General Hospital of St. Paul has announced that it will remit hospital charges for one week to patients unable to pay full charges for hospital treatment. This is an innovation of Dr. Utley's, the new president of the Midway Hospital.

The Kandiyohi-Swift County Society held its twenty-seventh annual meeting at Green Lake on August 31. Papers were read by Dr. G. W. Beach, of the State Sanatorium; Dr. A. R. Colvin, of St. Paul; Dr. W. H. Condit, of Minneapolis; and Dr. C. P. Nelson, of Minneapolis.

Dr. W. D. Middleton, a 1914 graduate of the University of Illinois, began work Sept. 1 as house physician to the St. Paul Hospital of St. Paul. He receives a salary of \$1,000, a fact to be pondered by all hospitals that seek house physicians who will accept their experience as a sufficient honorarium.

Dr. Charles F. Coulter, who has practiced in Wadena for a dozen or more years, has moved to Great Falls, Montana. In both his family and hospital work Dr. Coulter occupied a large place in the community work of Wadena, and will be greatly missed. His hospital interests go to Drs. Davis & Davis. Dr. L. A. Davis practiced fourteen years at Dalton, and his brother, Dr. Thos. Davis, is a recent graduate of the University Medical School, and has been house physician at St. Barnabas Hospital, Minneapolis for the past year.

#### PRACTICE FOR SALE

I offer for sale my \$4,000 practice in a city of 1,100 in eastern North Dakota; good large territory. Will sacrifice for quick sale. Address 399, care of this office.

#### PHYSICIAN WANTED

Fine location; big territory; thriving town of 400 in Red River Valley in Minnesota. Address 401, care of this office.

#### PHYSICIAN WANTED

A good doctor is wanted at Coleharbor, N. D. Write to C. A. Fuglie, Secy., Coleharbor, N. D., for particulars.

#### APPARATUS FOR SALE

One National steam-pressure sterilizer, medium size 18-inch gasoline heater. Inquire of Tibbets & Wise, Wayzata, Minn.

#### PART OF MINNEAPOLIS OFFICE FOR RENT

I want a doctor to share my office in a suite of rooms in a modern office building in Minneapolis. Address 403, care of this office.

#### PARTNER WANTED

A physician to buy half interest in a country practice in a small town. Must be Protestant, and a German or an American. For information, address 396, care of this office.

#### PHYSICIAN WANTED

A young doctor who speaks German to locate in one of the best towns in western North Dakota. Have party who will open drug-store at same time. Address 377, care of this office.

#### EXPERT VALUATION

Physicians who desire the services of a man experienced in the valuation of office furniture, instruments, surgical, x-ray, and other electrical outfits, libraries, etc., may address 400, care of this office.

#### OFFICE ATTENDANT WANTED

A nurse is wanted to assist physician and for office attendant. Small southern Minnesota town. Hospital work contemplated. No special training required. Can be kept busy. Address 398, care of this office.

#### PRACTICE FOR SALE

Must be sold within a month. In town of 600, twenty miles to nearest town. Said to be the beauty spot of North Dakota. One other doctor in the town; \$100 will buy the business. Address 394, care of this office.

#### ASSISTANTSHIP OR PARTNERSHIP WANTED

I would like to become associated with a busy practitioner. Am graduate of an A No. 1 school. Have had seven years' experience with a corporation and mining surgeon. Am married, a Mason, and can furnish best of references. Address 393, care of this office.

#### PRACTICE AND HOSPITAL FOR SALE IN NORTH DAKOTA

Completely equipped 10-bed hospital and office, including x-ray apparatus, with practice which ran \$9,000 this last year. Large territory; good collections; Methodist and Presbyterian churches; good high school; fine people. A fine opening for a good live young man who can do surgery. Reason for selling: I am going to specialize. Address 402, care of this office.



REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

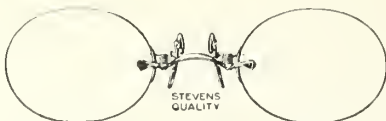
CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyneuritis	Epidemic Cerebro- spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	23	1														
Albert Lea	4,500	6,192	23		1													
Alexandria	32,681	3,001	32				1											
Anoka	3,769	3,972	32															
Austin	5,474	6,960	33															
Barnesville	1,326	1,353	0															
Bemidji	2,183	5,099	4															
Benson	1,525	1,677	2	1														
Blue Earth	2,900	2,319	1															
Brainerd	7,524	8,526	12		1					2								
Breckenridge	1,282	1,840	1															
Canby	1,100	1,528	2				1					1						
Cannon Falls	1,239	1,385	2															
Chaska	1,426	2,050	2															
Chatfield	1,074	1,226	0															
Cloquet	3,074	7,031	5															
Crookston	5,359	7,559	7	1														
Dawson	962	1,318	4			2												
Detroit	2,060	2,807	3							1								
Duluth	52,968	78,466	87	10	3	6	1	0	0	0	0	0	0	0	3	8	0	7
East Grand Forks	2,077	2,533	0															
Ely	3,572	3,572	3															
Eveleth	3,752	7,036	7			1						1						
Fairmont	3,440	2,958	1															
Faribault	7,868	9,001	11			2												
Fergus Falls	6,072	6,887	5	1														
Glencoe	1,788	1,788	3															
Glenwood	1,116	1,161	3															
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	3															
Hutchinson	2,495	2,368	3			2												
International Falls		1,487	1															
Jordan	1,270	1,151	0															
Lake City	3,142	3,142	5															
Le Sueur	1,937	1,755	0															
Little Falls	5,774	6,078	7	1														
Luverne	2,223	2,540	2															
Madison	1,336	1,811	1															
Mankato	10,559	10,365	10	1				1										
Marshall	2,088	2,152	5						1									
Melrose	2,591	2,591	2															
Minneapolis	202,718	301,408	324	32	5	18	6	1	1	0	7	0	0	0	0	26	3	27
Montevideo	2,146	3,056	5	1	1													
Montgomery	979	1,267	0															
Moorhead	3,730	4,840	2															
Morris	1,934	1,685	0															
New Prague	1,228	1,554	2															
New Ulm	5,403	5,643	7	1														
Northfield	3,210	3,215	3	1														
Ortonville	1,247	1,774	2	1														
Owatonna	5,561	5,658	6															
Pipestone	2,536	2,475	1															
Red Lake Falls	1,666	1,666	1															
Red Wing	7,525	9,048	9			1												
Redwood Falls	1,661	1,666	2															
Renville	1,075	1,182	1															
Rochester	6,843	7,844	32	1	1	1												
Rushford	1,100	1,011	1															
St. Charles	1,304	1,159	0															
St. Cloud	8,663	10,600	14	1	1													
St. James	2,102	2,102	2															
St. Paul	163,632	214,744	215	25	9	6	4	1	0	0	1	0	0	0	6	15	1	14
St. Peter	4,302	4,176	2															
Sauk Centre	2,154	2,154	3															
Shakopee	2,046	2,302	0															
Sleepy Eye	2,046	2,247	2															
South St. Paul	2,322	4,510	3															
Staples	1,504	2,558	0															
Stillwater	12,318	10,198	8															
Thief River Falls	1,819	3,174	4			1												
Tower	1,111	1,111	2															
Tracy	1,911	1,826	4	1														
Two Harbors	3,278	4,990	5	1														
Virginia	2,962	10,473	15	1		4			1									
Wabasha	2,622	2,622	2			1												
Warren	1,276	1,613	4															
Waseca	3,103	3,054	0															
Waterville	1,260	1,273	1															
West St. Paul	1,830	2,660	0															
Willmar	3,409	4,135	6	1														
Winona	19,714	18,583	31	5		1							1		1	4		1
Winthrop	813	1,043	3															
Worthington	2,386	2,385	3	1														

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian .....	1,258	1,112	0															
Aitkin .....	1,719	1,633	1															
Akeley .....			0															
Appleton .....	1,184	1,221	1															
Belle Plaine .....	1,121	1,204	1															
Biwabik .....		1,696	1			1												
Bovey .....		1,377	1	1														
Browns Valley .....	721	1,058	1															
Buffalo .....	1,040	1,227	2	1														
Caledonia .....	1,175	1,372	1															
Cass Lake .....	546	2,011	2													1		
Chisholm .....		7,684	7			1												1
Coleraine .....		1,613	0															
Delano .....	967	1,031	0															
Farmington .....	733	1,024	1															
Fosston .....		864	1															
Frazee .....	1,000	1,645	2															
Grand Rapids .....	1,428	2,239	1															
Hibbing .....	2,481	8,832	11		1	1									1	1		2
Jackson .....	1,756	1,907	0															
Janesville .....	1,254	1,173	3															
Kenyon .....	1,202	1,237	0															
Lake Crystal .....	1,215	1,038	0															
Litchfield .....	2,280	2,333	1															1
Long Prairie .....	1,385	1,250	3													1		
Madelia .....	1,272	1,273	0															
Malaca .....	1,204	1,102	0															
Mountain Lake .....	959	1,081	1								1							
Nashwauk .....		2,080	1	1														
North Mankato .....	939	1,279	0															
North St. Paul .....	1,110	1,404	3															
Osakis .....	917	1,013	0															
Park Rapids .....	1,313	1,850	2		1													
Pellcan Rapids .....	1,033	1,019	0															
Perham .....	1,182	1,376	3															
Pine City .....	993	1,258	1															
Plainview .....	1,038	1,175	1															
Preston .....	1,278	1,193	2															1
Princeton .....	1,319	1,555	1															
St. Louis Park .....	1,325	1,743	0															
Sandstone .....	1,189	1,818	0															
Sauk Rapids .....	1,391	1,745	0															
South Stillwater .....	1,422	1,343	4															1
Springfield .....	1,511	1,482	5													1		1
Spring Valley .....	1,770	1,817	2															
Wadena .....	1,520	1,820	3	1														
Wells .....	2,017	1,755	2		1													
West Minneapolis .....	2,250	3,022	1															
Wheaton .....	1,132	1,300	0														1	
White Bear Lake .....	1,288	1,505	2														1	
Windom .....	1,944	1,749	1															
Winnebago City .....	1,816	2,555	1															
Zumbrota .....	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum .....			2	1														
Faribault, School for Blind .....			0															
Faribault, School for Deaf .....			0															
Faribault, School for Feeble Minded .....			7		1													
Fergus Falls, Hospital for Insane .....			6	1														
Hastings, Asylum .....			1															1
Minneapolis, Soldiers' Home .....			4														1	
Owatonna, School for Dependents .....			0															
Red Wing, State Training School .....			0															
Rochester, Hospital for Insane .....			9		1													
Sauk Centre, Home School for Girls .....			0															
St. Peter, Hospital for Insane .....			12	5														
St. Cloud, State Reformatory .....			0															
Stillwater, State Prison .....			0															
OTHER PARTS OF STATE			633	61	22	22	1	1	12	0	7	0	1	3	20	56	2	49
Total for state .....			1699	160	48	73	13	4	17	0	18	0	2	6	41	144	7	122

\*No report received. REGISTRAR not doing his duty.

151 stillbirths not included in above totals.



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### THE MINNESOTA SANITARIUM

The above sanitarium is well housed and pleasantly located, and is conducted by men of high standing in the medical profession, Drs. Leo M. Crafts and Julius Johnson.

It takes nervous and mild mental cases, and addicts of alcohol and drugs. Such patients may be treated by the physicians in charge or by their family physicians.

Rates are moderate, the care is the best, and the surroundings are pleasant at the Minnesota Sanitarium, 1926 5th Ave. S., Minneapolis.

### LIBERAL GUARANTEE

The purchaser of x-ray apparatus is not so much concerned about what is said regarding the apparatus, as about what it will accomplish in his work. The Hogan Silent Röntgen Transformer is guaranteed by the manufacturers for five years, and is sold on a special plan which guarantees results to you.

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Dr. Arthur W. Rogers has made the Oconomowoc Health Resort what its name implies, a true health resort. This institution is ideally located, its buildings are commodious, beautifully equipped, and wholly free from institutional atmosphere.

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Mercurial (Gray) Oil is a useful preparation in the treatment of syphilis. It has the added advantages of being convenient to administer and practically painless. It is used by deep intramuscular injection. It is made and furnished by the National Pathological Laboratory of 5 S. Wabash Ave., Chicago, and 18 E. 41st Street, New York, which is also at your service for every sort of clinical laboratory work. Containers for specimens and culture media are furnished free upon request. Send for pamphlet on Mercurial (Gray) Oil and price list for laboratory service.

### KENILWORTH SANITARIUM

The Kenilworth Sanitarium holds so unique a place among American sanatoria that it may well be said of it, as is said of a certain American flour, "Eventually, why not now?" This slogan of the flour refers, of course, only to its use, while we would apply it only to an acquaintance with the Kenilworth Sanitarium, whose equipment and work place it so nearly at the head of high-class institutions of its kind in this country or abroad.

The sanitarium is located at Kenilworth, Ill., which is a beautiful suburb of Chicago.

### RAMSEY COUNTY SOCIETY BUYS A BALOPTICON

The Ramsey County Medical Society recently purchased a complete convertible balopticon. This machine is of the very latest type and is complete in every respect with the microscopic and complete lens system for all kinds of projection work. This apparatus is considered the best in the northwest and was purchased from the Standard Medical Supply Company of Minneapolis.

### NO PUNCTURES NOR BLOW-OUTS FOR 5,000 MILES

It sounds good to a physician to hear that he can travel 5,000 miles on a trouble-proof tire, and yet this is what the Leather Tire Goods Co., of Niagara Falls, N. Y., a thoroughly reliable company, guarantees for its tires.

The Woodworth tires are both trouble-proof and durable, and meet a want that physicians have long felt.

This Company is too sensible to say that punctures and blow-outs are *impossible* in their tires; but such troubles are so infrequent that the Company pays the cost of all such.

### LIGHT, PORTABLE X-RAY APPARATUS

The Vulcan Coil Company is offering the profession a portable x-ray apparatus that weighs only 52 pounds, and they guarantee its perfect working for five years. It will give a high-class radiograph of the hip in five seconds with one screen and in three seconds with two screens.

This apparatus is noiseless in operation and is very simple in construction and operation. It is just what is needed in many places, and will give perfect satisfaction in any office or hospital.

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### REST HOSPITAL

The cottage or home hospital is an institution that the large public or private hospital will probably never supplant, for it retains the home surroundings and feeling—the home environment—which the latter cannot supply.

Rest Hospital of Minneapolis, long under the management of Miss Delia O'Connell, R. N., is such an institution, and the best physicians in Minneapolis give it the highest possible endorsement by sending to it year after year their patients. Its rooms are pleasant, its location is unsurpassed, and its equipment is complete. It has the constant supervision of its conductor, and it will satisfy any reasonable patient or physician.

For information of any kind, including references, address Rest Hospital, 2527 Second Ave. S., Minneapolis, Minn.

### POINTERS IN RADIOGRAPHY

If you are interested at all in radiography it will pay you to write for a copy of "Paragon Pointers," a concise and interesting little treatise on the technic of the x-ray, so simply and practically written that the novice or the expert will find profit and interest in its perusal. In fact it is used as a text-book by the beginner, and a reference book by the experienced operator. It contains all the practical information to be

found in the big books, and is much more convenient to use, and the particular point wanted is found much more readily.

A second edition of this book has been prepared by Geo. W. Brady & Co., 768 S. Western Ave., Chicago, and they will be glad to forward a copy, without charge, to any physician.

A supplement to this book contains detailed information regarding the Milli-ampere-second Technic worked out by Geo. W. Brady & Co., which makes it possible and practicable to know, in advance of exposure, just what time should be used, and what quantity of the x-ray. This assures a successful radiograph for every exposure, and effects a great saving in plates, and tubes, as well as in time spent formerly in making extra exposures, so as to have one of them good enough to serve the desired purpose. Offering this to the profession, without charge or restriction of any kind, is a real service to science and humanity, and should be properly recognized.

#### WHY ATTENTION TO SURGICAL LUBRICATION PAYS

From the standpoint of results, certain lubricants are much more effective and useful than others. Thus if one lubricant is more slippery than another, it means the easier and infinitely less painful passing of the sound or catheter. This enables the physician to accomplish his purpose not only more satisfactorily to himself, but in a way that naturally appeals to the patient and convinces him of his physician's skill.

Again, a non-greasy, water-soluble lubricant means non-interference with the effect of subsequent urethral medication or irrigation, so that the physician is able to obtain results that are impossible if he uses a grease that obviously prevents the proper application of local remedies.

In using the cystoscope, furthermore, greasy substances are highly objectionable since they have a most annoying way of clouding the lens and blurring and distorting the field. But a transparent, non-greasy lubricant not only permits the instrument to be passed with less pain and discomfort to the patient, but without making matters more difficult for the examiner by fogging his lens. Through its use, therefore, the physician can make a thorough examination and with maximum convenience to himself and minimum discomfort and danger to his patient, obtaining the information necessary to enable him to give the exact treatment needed.

There is another phase of the subject which many physicians are apt to overlook, and that is that patients of discriminating habits dislike to have their linen stained or soiled with a greasy, unclean looking lubricant, particularly if it can be avoided—and it surely can if a lubricant is used that is non-greasy and free from substances that stain or discolor.

The foregoing may seem small, inconsequential details, but it is by attention to the little things that many earnest, painstaking medical men not only obtain better results, but in addition win the gratitude and "good will" of their patients. It is this gratitude and "good will" that lighten the physician's every day labors and reconcile him to the trials and tribulations of medical practice. Also, here is the only "ethical" way the doctor has at his command to gain patients. "Good will"

pays. And it pays to use anything that will contribute to that good will.

Do you know "K-Y" Lubricating Jelly? If not, write for a sample. Van Horn and Sawtell, 15-17 East 40th Street, New York City.

#### BAKING POWDER

The doctor frequently has occasion to prescribe a diet for his patient, and under such circumstances is interested in the healthfulness and action of every ingredient of the food. Probably no ingredient is more influential in the production of appetizing and nutritious foods than is baking powder and, at the same time, there is no ingredient over which there has waged such fierce trade controversies as to healthfulness and efficiency.

So much has been written about adulterations, substitutions, misbranding, etc., that people are easily alarmed, and very often intimidated and misled by unscrupulous manufacturers who have taken advantage of the situation for their own benefit and their competitors' injury. For example, certain baking powder interests have been active in the publication of information suggesting injurious effects of alum in baking powders. As in many other cases, however, the theory upon which this idea is based has no foundation in fact.

The question whether alum used in this way is injurious has been settled by the investigation of the Referee Board of Scientific Experts headed by Dr. Ira Ramsen, President of Johns Hopkins University. The distinguished character and personnel of the Board lends additional weight to its conclusion that "Aluminum compounds when used in the form of baking powders in foods have not been found to affect injuriously the nutritive value of such foods."

In short, the Board concludes "that alum baking powders are no more harmful than any other baking powders."

In like manner certain baking powder manufacturers have attempted to create prejudice against the white of egg, which is used in some baking powders and serves several valuable purposes. On the face of it, this is ridiculous because everybody knows that the white of egg, whether in baking powder or anything else, is absolutely pure and wholesome. Its use in baking powder permits both the dealer and the housewife to test their powder at all times to determine whether it is of standard strength. It is also used by the salesmen of the companies employing this ingredient, to keep the powder fresh on the retailer's shelves, thus protecting not only the retailer, but the housewife, as well, from baking failures.

After a careful investigation, we are thoroughly satisfied that both alum and white of egg in baking powder serve valuable purposes, and that baking powder containing these ingredients should be favored and recommended, and that unscrupulous manufacturers attacking these ingredients for commercial gain alone should not be deemed worthy of the patronage of the members of various medical associations.

The medical profession everywhere is concerned in the welfare of the public, and will welcome the discontinuance of misleading advertisements that have so long attempted to create the belief that so-called alum or white of egg in baking powder is anything but pure and wholesome.

# THE JOURNAL-~~L~~ANCET

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## THE STATE AND MEDICAL EDUCATION\*

BY GEO. DOUGLAS HEAD, M. D.  
MINNEAPOLIS

The modern American university traces its origin to one of three original types: the English, the French, and the German.

The English type, represented by the Universities of Oxford and Cambridge, serves as the prototype for many of the great eastern institutions in this country of which Yale and Princeton are notable examples. They represent most faithfully the original form of the medieval university with its *facultas artium*, the teachers and students living in a sort of monastical society. They are organized upon a basis of autonomous control, and are self-governing under a board of trustees. They are self-supporting by reason of their endowments. The ideal aimed at is the development of well-trained minds and broad, deep culture. In their internal management the State exercises no voice, nor does it, with rare exceptions, contribute to their support.

In contradistinction to the English type with its privately endowed universities stand the German university system, representing institutions of higher learning supported and controlled by the people of the state. The inauguration of a movement in higher education, modeled upon this plan, began in this country with the establishment of the state universities, those of Indiana, Iowa, Michigan, Wisconsin, and Minnesota being notable examples.

Like the German type the state institutions are supported by the people, not by private en-

dowment. Like the German universities, they are centralized institutions composed of the union of faculties including the learned professions. As in the German system, they are important seats of scientific work and investigation, the professor being both a teacher and a scientific investigator. As in the German system, a large degree of autonomy and academic freedom in the management of their internal affairs rests in the hands of the teaching staff,—the nomination of professors and the choice of deans, and the election of faculty officers, the working out of the intellectual life and ideals of the institution; but the government of the student body is largely in the hands of the teachers and students.

It will be observed, therefore, that in this country two types of institutions of higher learning exist, organized upon quite a different basis. One group is independent of the State in both its management and support; the other is dependent upon the people of the State for both its maintenance and control.

In institutions of the first class boards of control possess large governing powers. They are restricted in their official acts only by articles of incorporation, by traditions, by precedent, and by the limitations placed by donors upon private gifts and endowments.

In institutions of the second class, namely, the State universities, boards of regents are restricted in their freedom of official action, not only by the influences previously mentioned, but by the very fact that these institutions are the

\*President's address before the Minnesota Academy of Medicine, September 13, 1916.



"creatures of the State," and all the safeguards which experience has proven of value in protecting the State from selfish or over-ambitious corporate or individual interests must govern in their management and control. Too much emphasis cannot be placed upon this feature in the organization of these institutions. It is vital to their existence as State institutions. In the enjoyment of the benefits all individuals should have an equal right, and no special privileges should be granted.

I need not mention these safeguards. You are all familiar with the care exercised by the National Government, in order to protect itself from the charge of favoritism and special privilege. The United States permits no man to combine his private business with that of the government. It joins its interest with no firm, corporation, or private person, in the administration of its affairs or the conduct of its public business. Individuals serving upon Federal boards are not permitted to award contracts to firms in which they are interested. The record of officials appointed to public service is carefully scrutinized, to determine whether or not their private interest will in any way interfere with the fair and just performance of their public duties. The State of Minnesota protects itself and its officials in much the same way. Outside of its affiliation for teaching purposes I know of no close working relation between the State and any private corporation or individual. The very nature of our public organization as a State prohibits it. If the State has special privileges to give, they should be granted freely and equally to each and all according to fair standards set by the State. One individual or corporation cannot be singled out and granted favors denied to others without creating dissatisfaction and injustice. Great endowments offer no argument for the violation of this principle. There is in fact grave danger to the State in granting such privileges when tempted by special inducements. It applies not only to the State in the administration of its business affairs, but also to every department of the State, whether it be social, philanthropic, administrative, or educational.

While this principle has been in the past applied more particularly to the business of the State, it is vastly more important that its educational institutions be preserved from even the suspicion of favoritism, the granting of special privileges, or the dominating influence of one man or a group of men who might be tempted

to use this great arm of the State in the furtherance of their own purposes.

The State University, under the leadership of its president and board of regents, against vigorous opposition has launched upon this policy. The people of the state, educators in general, and medical education in particular, should be deeply interested in this endeavor to mingle the interests of the State and those of private individuals and corporations in the exercise of its teaching function.

About one year has now passed since the first step was taken, and an affiliation by the State University with a private corporation of physicians was established. It is my intention tonight to call your attention as medical men, many of you alumni of the University and therefore vitally interested, to some of the evils which it seems to me have already crept in as the result of this union.

In the first place this affiliation has at least by one special act placed the medical school before the profession of the state, in a position of unjust discrimination. During the past year two professors of the medical department made application to the Administrative Board of the school for an affiliated relationship in all respects similar to that previously granted, except that no endowment fund was offered. Objection was raised to the granting of this application on the grounds that these men were attempting to enlist the University in a scheme to secure cheap medical assistance in their private work. It was an unjust criticism. The offer was made in good faith, and the physicians making it feel the injustice. When opposition to the request appeared in the Administrative Board, the application was immediately withdrawn by the men making it. These two men were full professors in the medical school. Both had given long years of service to the school without compensation, and had sacrificed much in its interests. Each in his special line of work bears a reputation higher than the men doing a corresponding class of work in the clinic with which the University is now affiliated. Both have a large amount of clinical material for teaching purposes. Both are experienced teachers. Both have the highest professional standing. Why should the University refuse to grant these men the privilege which it has already given to other physicians of the state? What reasons can the University give to other physicians of Minnesota of the highest professional standing who may seek a similar

relationship in order to avoid the charge of favoritism? On the other hand, having committed itself to the principle of affiliation, should not the State establish a standard of fitness and encourage the establishment of such relationships with all worthy and capable medical men desiring to associate themselves with the teaching work of the institution, and able to comply with the requirements? This instance illustrates pointedly one of the difficulties which must be met and adjusted when once the State embarks upon a policy mingling public and private interests in its educational work.

I wish to speak of another phase of the subject in which the State and medical education, and indeed education in general, is most vitally interested. To anyone who is at all conversant with the history of education in this country there is an apparently growing tendency among boards of regents, especially of state institutions, to extend their powers and assume more direct control, not only over the administrative affairs of the universities, but also over the methods of instruction employed, the individual freedom of speech and action of professors and instructors, the subject matter taught, the general educational policy to be followed, and the educational ideals to be established. This is an unwarranted interference by boards of regents in the internal management of the affairs of state universities. Many of the members of these boards have been, and still are, appointed for political reasons. The term of office served is in most instances too short to permit of a thorough knowledge of the institution's ideals and traditions. Alumni members who are most conversant with the University's needs and who are properly qualified to act, are in the minority. The chief qualifications for appointment seem to be wealth or business capacity or political influence. The personnel of the majority of these boards is, therefore, not properly constituted to deal with matters affecting the internal organic life of these institutions. They are primarily boards of business administration.

Among the many instances of unwarranted interference with academic freedom, examples of which are rapidly multiplying, I need mention only the following: On March 18, 1915, seventeen members of the faculty of the University of Utah resigned their position in protest against certain acts of the President of the University and the Board of Regents. The cause of this action is stated in part as follows: "the encroach-

ment of our academic rights and duties by certain interests which are seriously threatening the efficiency of the University." The special committee appointed by the American Association of University Professors to investigate the condition finds the facts substantially as stated by the resigning professors.

In the case of Professor Scott Nearing, of the University of Pennsylvania, in which the question of academic freedom was involved, I quote from the committee's report as follows: "The committee holds that such procedure, referring to the action of the Board of Regents, provides no proper safeguard for academic freedom; that it gives the individual academic teachers no adequate security against substantial injustice." The committee is accordingly compelled to conclude that at least a contributory cause of Dr. Nearing's removal was the opposition of certain persons outside of the University to the views upon questions within his own field, expressed by him in his extramural addresses.

The special committee of the Association has now before it, under investigation, cases involving academic freedom from the University of Colorado, the University of Montana, Dartmouth College, Tulane University, the University of Oklahoma, Allegheny College, and the University of Washington.

In this connection I wish to call your attention to the unjustifiable assumption of authority by the Board of Regents of the University of Minnesota over the freedom of speech and action of its medical faculty. After the affiliation was accepted, not only was the resignation of one of the University's most able professors demanded because of the stand which he had taken in opposition to the wishes of the Board, but a resolution was passed reading as follows: "That the best interests of the University require that the new plan for developing the graduate medical work of the University should not be opposed hereafter by any member of the faculty of the Medical School, but, on the other hand, should have the loyal support of all the members thereof." This resolution was later liberally interpreted, but its intent remained clearly expressed, and it has never been rescinded.

Inasmuch as the University had entered into a six years' trial period, during which the unbiased judgment of the members of the faculty familiar with the needs, traditions, and ideals of the school would be required to determine whether or no the policy adopted was working

out for the best interests of the Medical School, this resolution was a direct blow at the freedom of speech and action of the clinical teachers in the School. It was an attempt in advance of the trial period to coerce those men into submission, and to close their mouths to a discussion of its merits and objections. It showed a lack of confidence in their honesty, sincerity, good sense, and loyalty to the University. The resolution became all the more obnoxious because a large number of the men affected were alumni of the School, and grown up in its service, had sacrificed much in its interest, and loved its ideals and traditions. I wish to call your attention to the fact that all of those teachers who submitted their resignations at this time were alumni of the School. I can see how in the heat of the controversy such a resolution might have been passed. It is difficult to understand how a board of fair-minded men having the best interests of a great institution of learning at heart, knowing the value of free interchange of opinion and discussion, and the blighting effect of coercion upon the spirit of its teaching force, can continue to hold this club over its faculty members. It is a direct violation of one of the most highly prized laws governing rights of teachers in higher institutions of learning. It is another example of one of the difficulties to be encountered when the State launches upon a policy affecting private interests.

I wish to call your attention to another phase of the subject growing directly out of the attempt to unite private enterprises and public service. In the early history of medical education in this country most of the medical schools were owned and controlled by groups of private practitioners, and were organized primarily for the benefit of those giving the instruction. The history of our own school passed through such a stage until finally under the leadership of the first dean of the Medical Department, Perry H. Millard, a number of those private enterprises were joined together and formed the beginning of the Medical Department of the University. Through long years of a slow and painful course the School has gradually emancipated itself from the influence of this form of medical teaching.

I fully realize that in discussing this phase of the subject the character and honesty of the individual teacher counts for more than the system under which he works. For fear that what I shall say may be misunderstood, I wish here to pay a personal tribute of respect and ex-

pression of appreciation to those men who in the early years of the School's history gave of their time without compensation and the best of their energy that the reputation of the School might be established, and Minnesota do its part in training intelligent practitioners of medicine to serve the people of this state. It was not the fault of these men that little clinical material outside of their private work was available for teaching purposes. I do, however, firmly believe that in presenting clinical material to students every clinician, no matter how honest he may be, should have the stimulating effects of an atmosphere as free as possible from the spirit of self-advertisement or glorification or the temptation to hide mistakes or misinterpret results. There is great need still for honest medical teachers, men who will state the truth without exaggeration, who are willing to discuss diagnostic mistakes if by so doing the student may profit, who are just and fair in their attitude toward their fellows, who stand ready to quote unfavorable end-results and are frank in the statement of the therapeutic effects of operative as well as medical procedures. For these and other reasons private clinical material does not, in my opinion, lend itself so readily to the real needs of medical teaching as that found in the wards of public institutions, charity hospitals, and dispensaries.

The attempts now being made to make available for teaching purposes the private material of clinical teachers by placing upon the Campus hospital accommodations where such patients can be cared for and treated, is a direct outgrowth of the policy adopted by the University of mingling private enterprise in the higher educational business of the State. Such a plan as now proposed would never have been dreamed of, would, in fact, have been impossible in the Medical School two years ago.

It raises again the objections encountered in attempting to unite public and private interests. It is doubtful whether it is legal. It creates a feeling of hostility against the School and its teachers in those practitioners who will feel that an unfair advantage has been granted to those so favored. It will, I think, tend to commercialize the atmosphere in which students and teachers will be called upon to do their work. Until the State has sufficient resources to pay its medical teachers good salaries for full-time work the interests of medical education are best subserved by the separation, as far as possible, of



the private practise of the clinician from the service which he renders to the State as a medical teacher.

I have carefully refrained from a discussion of any but actual difficulties which have already arisen. Sufficient time has not elapsed to determine the effect of this affiliation upon the spirit of the teaching force, upon the ideals of the student body, upon the traditions of the School, and upon the institution as an organic whole.

As would be expected, so radical a change in the policy of the University has caused a sharp difference of opinion in the General Alumni Association, which threatens a prolonged struggle for control in this body. The majority of the medical alumni of the state find themselves out of harmony with the University administration. It is a fact full of significance to all medical alumni that the postgraduate clinical courses heretofore offered to practitioners of the state have now been abandoned upon the Campus and transferred to the private clinic.

I have called your attention to some of the difficulties which have already appeared in the endeavor of the State University to carry out this experiment in medical teaching. The institution has been forced into a position in which it has granted privileges to one group of medical men not enjoyed by others of equal ability who stand willing to establish them. In order to enforce its demands the Board of Regents have interfered with the freedom of speech and action of its faculty. The policy adopted has encouraged members of the faculty to demand the use of

buildings and laboratories upon the Campus in which their private practise may be carried on.

That any part of the teaching function granted by the State to its University should be allowed to slip out of the direct control of the State into the hands of private individuals or corporations is unsound in principle. Institutions of the state and business enterprises under private control have little in common. A private business created by one man or a group of men is dominated by one personality, not so an institution of learning. Its professors should receive their appointments because of merit and by the decision of their peers; and its students should work out their intellectual salvation in a democracy of scholarship, in an atmosphere of intellectual freedom free from any dominating influence. A private business corporation is mushroom in its growth, springs into feverish existence in a day, and usually dies with the death of its founder. Not so a university of the state. It lives on century after century. It works best when it works quiet and deep. To quote Cattell: "Security, permanence, honor, and slow growth of traditions are the foundation stones upon which it rests." The spirit in a private business tends to become narrow, selfish, self-centered, mercenary. This is not so in a university. Its duty is to counteract selfishness, ignore financial rewards as a primary motive for action, instill the love of truth, establish an atmosphere of intellectual freedom, teach a high-minded idealism which sends men and women out into business and professional life with a determination to elevate its standards and improve its conditions.

## THE CAMPAIGN FOR CONSERVATION OF THE SENSES\*

By JOHN H. RINDLAUB, M. D.

FARGO, NORTH DAKOTA

One must have been unobservant indeed not to have realized the rapid development of conservation in all political, industrial, and educational lines, during the past two decades. Particularly is this true in the matter of health. There is not a medical man in this Association who would not welcome the establishment of a National Board of Health. Owing to antagonisms from certain vicious quarters this seems improbable for the present, but we are fortunate in

having a national organization in our American Medical Association that is doing a wonderful work in educating people to utilize all possible means for conserving the human vital forces, thus making a happier, healthier, and better race.

The Council on Health and Public Instruction, whose energy had been conducted along more general lines, decided at the 1913 meeting of the A. M. A. that a special Committee on Conservation of Vision be organized, consisting of fourteen eminent ophthalmologists, whose "object would be to produce interest and action

\*Read at the 29th annual meeting of the North Dakota State Medical Association at Devils Lake, May 10 and 11, 1916.

in conserving vision and to endeavor to concentrate under the auspices of the A. M. A. activities calculated to preserve the sight of this and coming generations." As chairman of this Committee, Dr. Frank Allport, of Chicago, was chosen. Up to this time there had existed a national, but rather inactive, society of this nature, composed of earnest, capable men and women who were waging a campaign against blindness. They lacked, however, two important things: first, a man of executive ability, who was willing to render real voluntary service as chairman every day in the year; and, second, they had no great Association whose machinery they could utilize.

In order to nationalize the movement, and create a healthy sentiment in favor of Conservation of Vision, a lecture bureau manager in each state was appointed to superintend the work. The "State Manager's" duty was to enlist the assistance of competent practitioners in the different parts of the state who would be willing to lecture on invitation from local medical societies, women's clubs, teachers' institutes, boards of health and education, and so forth, the lecturer's expenses to be paid by the one issuing the invitation.

This being an age of visual instruction, in order to make these lectures more interesting and easy to deliver the Committee prepared a box of colored and uncolored stereopticon slides, and sent them to each manager, to be loaned to his associates in the work whenever a lecture was to be delivered. These slides were securely packed in a strong box and locked with a Yale key, so that the box could be shipped from place to place by express, the key going to its destination by mail. In addition to this a pamphlet was prepared by Dr. Allport, the National Chairman, entitled "A Plan of Campaign for the Conservation of Vision." These pamphlets were distributed to the co-lecturers by the manager. Besides this, each lecturer was placed on the mailing list for the Press Bureau, so that he could keep fully abreast of the times from the new articles as they came out each week, and perhaps use them in his lectures.

One of the first acts of the National Committee was to write, print, and distribute more than twenty short, non-technical, and well-illustrated pamphlets, teaching people how to conserve vision. These are on popular topics, and have special merit, being written by men of prominence and authority. Aside from these pam-

phlets, the Committee furnishes appropriate unsigned articles each week for the Press Bulletin, which is sent to nearly six thousand newspapers, which can, and do, use them as editorials and general news. Its articles, "Cross Eyes," "The Eyes and the Movies," "Illumination in Homes, Offices, Schools, etc.," "What Is Cataract," etc., you have undoubtedly seen because they have been copied extensively all over the country.

While this committee started out as a Committee on Conservation of Vision, it soon began to widen its scope until not only was sight the subject of attention, but hearing and the other senses as well. Even this field was too narrow, for now the eyes, ears, nose, throat, and teeth, receive attention, and, in fact, anything that may come under the head of school inspection with special reference to an annual systematic medical examination of the children.

During the first season, 1913-14, there were 339 lectures to 69,425 people. During 1914-15 there were delivered 520 lectures to 120,664 people. You will thus see that during the two seasons there was carried the gospel of Conservation of Vision to the enormous number of 190,089 people through the medium of 859 lectures. Indeed, Dr. Allport considers that through the audiences of the Press Bureau, the 35,000 pamphlets distributed, and the 190,089 people who have listened to the lectures, the committee has preached to over one million directly, and one million indirectly,—two millions in all.

School hygiene as a science has been little cultivated in America. Notwithstanding inspection in numerous cities, authorities tell us that the records show conclusively that not one-third of our twenty million school children are free from physical defects that are prejudicial to health, yet we have not a single periodical of school hygiene in this country, while Germany has four of excellent scientific worth. Remember the school children comprise one-fifth (20 per cent) of our entire population. Practically six million (30 per cent) suffer from lack of proper ventilation, and other sequelæ due to adenoids and enlarged tonsils. Probably more than five million (25 per cent) have defective vision; one million (5 per cent) have defective hearing; five million (25 per cent) are suffering from a grave form of malnutrition; ten million (50 per cent) have defective teeth, which interferes seriously with health. (Dr. Osler says defective teeth do more harm to the human race than

whisky); one million (5 per cent) have tuberculosis; one million (5 per cent) have spinal curvature; and so forth.

It is estimated that at least 75 per cent of the school children are suffering from some partially, or completely, remediable defect which interferes more or less with their physical, mental, and moral advancement.

One is frequently asked the best method of bringing about results in the examination of school children. At the outset let me say that volunteer work is never satisfactory nor lasting. The ideal method would be to employ competent medical practitioners and trained visiting nurses; but, if the means are not forthcoming for either of these, the teacher himself can do wonderful service with a little guidance. He is with the pupil every day, and by the use of a chart with plain questions and record cards, as suggested by Dr. Allport, or the more elaborate series of questions, outlined by Dr. Hoag, it has been shown that the results were surprisingly good; in fact, it will be some time before the people are all educated to see even the value of the school nurse, so that we must to a large extent, at present, depend upon the teachers.

Almost all superintendents are in favor of the movement, and the time is not far distant when the frequent inspection of school children, even in the rural districts, will be taken as a matter of course. A beginning must be made, and the school teacher should have enthusiastic encouragement. Had we such a fine organization as exists in Baltimore County, Maryland, the matter would be somewhat simplified. There every rural teacher must at least be a normal school graduate, and receives a salary larger than the city teacher of the same grade. This is as it should be, but everyone intelligent enough to teach school ought to be able to make the ordinary examination as outlined by Dr. Allport, which requires no medical education and calls for no diagnosis. The teacher merely ascertains through his questions the fact that something is wrong, and sends word to the parent, leaving the diagnosis and treatment for the doctor selected for consultation. The chief difficulty with any system, however simple, is that it will not be followed up. Enthusiasm may be displayed for the first year or two with very creditable records of the examinations, but, unless definite times are set, the matter is made obligatory, and the teacher realizes that it is not only beneficial to the pupils, but directly makes his own work

more easy by removing the handicaps under which so many of the children labor, the results will be far from satisfactory. There is no reason why every county cannot bring about the good results accomplished in Bowman County without a nurse, and Grand Forks County with her nurse. The health officers in many counties are doing splendid work, but in others conditions could be improved by working in harmony with the county superintendent without much expense.

So far as I have been able to ascertain, Grand Forks, Barnes, and La Moure Counties, and Williams County for a portion of the year, have school nurses. Several cities, such as Fargo, have city visiting nurses. McHenry, Wells, Barnes, and Ward Counties have the medical inspection through a physician. I have been particularly impressed by the results obtained by Dr. Whittemore, Superintendent of Health, of Bowman County, where the authorities have not seen fit to provide him with a visiting nurse. Not only has he succeeded in getting a thorough cooperation of the teachers, but the parents also take very kindly to it, and the fact that he obtained better results by far this year than last shows what can be done when public funds are not available. I do not wish it to be understood that examination by the teachers is the best method; but, until the public will provide funds to have such work done by medical men and trained nurses, it seems that by having the teachers do the work, at least a very good start in the proper direction may be made. What has been done in Bowman County can be done in every county of the state.

North Dakota has a law which compels a school board, whenever petitioned by a majority of the persons having children attending the schools of the district, to employ one or more physicians as medical inspectors of schools, whose duty it will be to examine, at least once annually, all those enrolled in the public schools of the district, except those who present a certificate of health from a licensed physician. It is his duty to make out suitable records for each child, one copy of which is to be filed with the county or city superintendent of schools. Notice of physical defects of abnormal or diseased children must be sent to the parents, with recommendations for the parents' guidance in conserving the child's health. The medical inspector must cooperate with state, county, and township boards of health in dealing with contagious and infectious diseases and to secure medical treatment



for indigent children. It is the duty of the county and city superintendent of schools to co-operate with school boards in promoting medical inspection. He may arrange schools by groups, especially in the rural districts, for the purpose of inspection, and shall advise school boards with a view to securing the most efficient and economical administration of this law. The school board or the board of education must furnish all blanks and other needed supplies for this purpose.

You will thus see that in this state the whole responsibility as to whether school inspectors shall be employed, rests entirely upon the parents. Just how best to convince them that such examinations are beneficial and necessary is somewhat of a problem. Many states have adopted different courses. In Wisconsin the University has inaugurated, in connection with its Extension Division, a Bureau of Visual Instruction. This department sends regularly to the rural and high schools, and other educational institutions and societies making application, different series of stereopticon slides and moving-picture films graphically portraying the activities of the department along the line of school hygiene and other sanitary conditions. The Wisconsin University was the first to inaugurate such a bureau, and the results of this method have been most gratifying.

Those of you who were fortunate enough to visit the Panama-Pacific Exhibition must have been impressed with the health exhibit of the Commonwealth of Pennsylvania, prepared by its commissioner, Dr. Samuel G. Gibson. In the section on school hygiene there were transparencies showing that Pennsylvania inspects approximately 400,000 rural school children a year. It is perhaps the only State in the Union which has undertaken medical and sanitary inspection of rural schools on such a vast scale under State supervision. The progress and evolution of the school house were also depicted by transparencies from the old insanitary unlighted school to the modern pleasant and well-lighted building. There were models of the ideal school building and grounds, not forgetting the screened out-houses. The dangers of the common towel were made clear by life-sized wax models of pupils, the evolution of the sanitary drinking cup and fountain was illustrated, and good and bad seating facilities in schools were shown by life-sized wax models of boys and girls in actual seats placed at adjustable desks. Many other states had commendable exhibits, but that of Pennsyl-

vania was so excellent and superior that it received the gold medal.

Considering the fact that the New York, Connecticut, Indiana, New Hampshire, Maryland, West Virginia, Delaware, Pennsylvania, and other legislatures have provided funds for campaigns, it has been suggested that this body pass resolutions favoring such a movement, to be conducted under the supervision of the State Superintendent of Health in connection with the State Superintendent of Public Instruction. Before success can be attained, public sentiment among parents must be created. This costs money, but the funds will be forthcoming if a united effort is made by the medical fraternity and the educators of our state. As one member (Dr. Rowe) who is very much interested in school inspection remarked, it is discouraging when the County Commissioners spend \$100,000 to erect a fine jail for our criminals to provide them with better accommodations and more modern conveniences than nine-tenths of our people have in their own homes, but refuse to employ a school nurse because of lack of funds. But all comparatively new movements have their periods of discouragement, which simply call for a new vigor on the part of those who wish to accomplish results.

It was my intention to outline briefly what has been done to prevent ophthalmia neonatorum and other specific diseases of the eyes, injuries from traumatism, damage done by trachoma and other infectious diseases, and blindness from the use of wood alcohol; but the time allotted for this paper will not allow it. The fact that Crede's method is so little used, despite the law on our statute books, is deplorable. New York, Massachusetts, and several other states furnish gratis to physicians and others engaged in obstetrical work a package containing a vial of 1 per cent solution of silver nitrate, together with a sterile dropper and printed instructions in several languages. The states rightly feel that the prevention costing \$5,000 a year is worth more than they pay for it; in other words, the \$5,000 is a good investment from the economical standpoint, which, however, is a very poor viewpoint from which to consider the matter.

It is true we are comparatively young, and our state not thickly settled, but we can ill afford to sit back and neglect the changes that are going on; and I cannot close this paper without calling attention to the disease that I am convinced is increasing in our state. It is popularly believed

that trachoma has not, as yet, become general in its distribution, but we are fast coming to realize that we are about to face a problem in our own section of the country. The Government has for years been rigid in examining immigrants, but not until Dr. Stucky, of Lexington, Kentucky, as late as 1910, reported the alarming condition in his state, did the Government see the necessity of lending its aid, which resulted in a survey of that state, showing 33,000 cases in Kentucky alone, and that the same disease was prevalent in other states,—the Virginias, Southern Illinois, portions of Ohio, Arkansas, in the mountains of Missouri, and among the Indians, there being 20 per cent, or nearly 65,000, of the latter infected.

Dr. A. T. McCormick says trachoma presents a problem more largely economic than any other in the whole field of preventive medicine. No one dies with this disease. Half of those who have it are eventually made blind. The economic usefulness of every patient is greatly decreased. It would be conservative to say that the average earning capacity of persons having trachoma is less than one-fourth of the average earning capacity of well persons. It is slowly but surely contagious, and spreads through families, schools, institutions, or communities when an individual case is introduced.

While we can only guess at the number of whites having trachoma, the Government records tell us that in this state about 23 per cent of the Indians are infected, and that as they are in close contact with white settlements, it is not to be wondered at that trachoma has increased each year, so that the importance of the subject calls for preventive measures, or we shall soon lose our proud position of having a smaller percentage of blind people according to the number of population in North Dakota than in any other State in the Union.

The School for the Blind at Bathgate is helping in this campaign, and has recently sent to every teacher in the State a pamphlet prepared by the Ohio Commission of the Blind "Concerning Common Causes of Blindness in Children, and the Means and Methods of Prevention."

This paper is based upon the reports of Dr. Frank Allport, Chairman of the National Committee on Conservation of Vision, and others, whose material the writer has freely used, and he wishes here to make full acknowledgment of his indebtedness.

## DISCUSSION

DR. C. N. CALLANDER (Fargo): We are all familiar with the need of these educational campaigns and we are all equally familiar with the difficulty of putting into a practical way such campaigns. Here we are three times today having brought to our mind the big educational problems that are before the medical profession, trying to get to the general public with important things in the matter of education. The president this morning in his very broadly gauged address begged the medical practitioner to get out from under the old views in which the medical man is held into the broader open light for education, teaching everybody with whom he came in contact. He was followed by Dr. Hotchkiss this morning in another appeal certainly as laudable, now Dr. Rindlaub has presented us with another one with which we are all familiar, and with the great needs of educating our parents in the care and handling of their children to prevent any inefficiency which must necessarily follow conditions of the kinds which have been presented to us. It occurs to me that the difficulty of educating the children is the one question, not the question of the needs, for we are all perfectly familiar with them. I would just like to say that it ought to be one of the works of our Association now in session to unfold in some way a scheme to carry out this plan of campaign which is now suggested, in harmony with the other many plans that we all want to indorse; but the difficulty is in getting started, and I would suggest here that our chair or that this Association in some way, before the meeting is closed, draft a scheme by which this campaign can be brought to the minds of the people, either through the legislatures by legislation or by a committee who will draft schemes and present the matter to legislative bodies.

DR. H. E. FRENCH (University): Dr. Rindlaub made a very clear presentation of something we are all more or less familiar with. It is hardly necessary to say anything in addition to what he said, yet I feel like trying to emphasize at least two or three things. One is the greatness, the vastness of this work of conservation that is going on,—of course, you know that,—and another thing is the vastness of this one phase of it, the committee on the conservation of vision, the vastness of the work that committee is doing, also the vastness of what is to be done, and the need of this work. The best proposition, no doubt, is, as the doctor said, for the school to have medical inspection by a competent physician, and probably with a nurse right with him, both employed, the nurse with her duties and the doctor with his. The next problem is the nurse. Of course we would not expect the nurse to make diagnoses, either, but simply to see that something was wrong, and see that the case was directed to proper treatment; but I think until we can get that kind of ideal condition we have to depend upon the teachers, and, although the saying is that a little knowledge is a dangerous thing, I think teachers can do, and have done in cities, a great deal of good. We would not expect them to make diagnoses, or to advise treatment; but they ought to be able to recognize many conditions and recommend to parents or to the county authorities, county health officer that treatment be instituted, at least report the case and make a record of it. I think it might be worth while for the



normal schools to have a course fitting teachers for this work. It would be worth more than some of the work in pedagogy, and there may be a resolution that could be sent to authorities of schools of that kind, calling their attention to the need of some systematic instruction of their teachers in this line.

DR. G. GOLSETH (Jamestown): I think that at the present time the best thing would be for the teachers to make the examination because the public is prejudiced against the profession; they are prejudiced against the nurses because they think they are influenced by the profession, and until the public has gained more light on this subject, I think that to get at the matter through the teacher would be the best way. I also think it would be a good idea if all of the teachers or if all normal schools gave some instruction on the examination, or more particularly instruction along the line of conservation of the senses or vision. If they had that instruction, it would be a good deal easier to line them up for this kind of work than if they had not had any instruction at all, but I have seen some trouble with the nurses examining patients, and sometimes they make a diagnosis and possibly tell them they have trachoma and the pupils go to some doctor who says they have not, and thus the nurse is discredited. The danger is for the nurse to make the diagnosis, whereas the teacher should simply say to the pupil, that you have some defect, and you need a careful examination. When the people are more educated in that line we could have regular inspection, but for the time being, I think the teachers would be the ones to make the examination, and there should be some special training in that line in the normal schools.

DR. A. J. McCANNEL (Minot): I cannot more than indorse what Dr. Rindlaub has said in regard to the inspection of children. I had the subject of inspection brought home to me forcibly here last week. I had occasion to examine a school in which there are about four hundred children, and in which there has been systematic examination for the past four years; and the surprising thing to me was the small number of defects uncorrected that I found. The small number of throats that needed attention, the small number of eyes that were not properly corrected, and one thing that I just mentioned to Dr. Rindlaub this morning, out of the four hundred I examined I did not find one discharge of the ears out of the four hundred cases. I feel quite sure in saying that if that had been done five years ago you would have found a much higher percentage, probably twenty per cent, and at that this is a peculiar incident that there should be so few, but it shows very forcibly the value of inspection. In this particular school, the State Normal School, and the Model School in connection with it, I must say that the teachers are especially alert and give the examiner and the work their hearty co-operation. They go out of their way sometimes to see that the work is carried out, which accounts for the splendid results obtained in that particular school.

I was talking with the president of our State Normal there this year, who is arranging to have this inspection given to the summer school, and I thought it would be very easy in all our institutions to have that inspection given.

DR. BUSSEN (Baker): In our regular schools we have a regularly paid medical inspector. It has been

tried out for the past two years. I have been examiner, and I am free to say I have not found any evidences, as cited by Dr. Golseth, that the people think there is a scheme to get children into operations. I find things very much the other way. They have taken to it very nicely, and the reports they have shown me give a large number of cases. To begin with I am very much more in favor of having teachers instructed to carry out this work in the rural districts.

DR. T. MULLIGAN (Grand Forks): I do not intend to discuss in any broad way that which has been covered, but I am fortunate in coming from a county that has a county nurse. We, also, in Grand Forks, have a school nurse and visiting nurse, and we are very fortunate today in having the county nurse, also the school nurse, and as the question has been broached as to how the parents feel when approached by the nurse, I think, perhaps, if it is not out of place, if you would allow them to take a minute or two they might perhaps be able to give us a little light on how the people feel when they are approached through these channels.

DR. H. J. FRIESEN (Grand Forks): I would like to call attention to the desirability of looking after refraction early, often sometimes considerably before the school age is reached. With errors of refraction in children the eyes begin to cross, and the parents think they have to let the trouble go to a certain age before it can be corrected by an operation. Operation is only the final resource for anything like that. It should be corrected early. If you let it go and we do need to correct the refraction, the using of the eyes causes amblyopia, and if you let that go over seven years it is sometimes hard to restore the functional activity of that eye. It seems to me that it is quite important to have this corrected.

MISS FODNESS: I will just bring out two points. Possibly the first call to a home would not be received as a social call, but the second one, when I emphasize that it is for the benefit of the children and not a personal benefit for the nurse or the doctor, I have no trouble in receiving a friendly hand. Of course through the teachers we need help and co-operation, but we notice our best results come from the schools where the teachers are very much interested, still I have yet to find the teacher who will go into the home and advise cleanliness of the pupils whom she is teaching. The parents are very sensitive as to that, and it is asking a good deal of the teacher to go into such a home.

MISS HALVORSON: In my experience in going to the homes, parents have spoken well for the medical profession, for I think it is quite generally known in Grand Forks that the physicians have done a great deal of work gratuitously for children in families who were not financially able to have the work done, and I have not found any unkind feeling toward the medical profession. Of course in a few cases I have come into homes where the parents have resented the intrusion a little bit, but when they have been made to understand what we are doing, they have not resented it, and they have been the people, sometimes, from whom we have gotten the best results. I must say that I cannot believe that the people have a feeling towards the profession that would discourage this work being carried on, either the medical profession or the nursing profession. Parents seem to realize that it is for the good of their children, and they are willing to respond, ex-



cepting, of course, in the cases that have not been financially able.

DR. A. A. WHITTEMORE (Bowman): In any method adopted, organization should be one of the first things to be considered, and it is one of the most important things. I think the public health officer should be the one to supervise medical inspection of schools under any system that is adopted.

Regarding public opinion in the matter: it takes about three years, I have found, to reconcile public opinion to any interference with anything touching the personal rights in any way of the pupil involved; and, if the man or health officer who is instituting something of this kind is not big enough to stand a little criticism for about two years, he ought not to start. In our county we have instituted the correspondence course for our teachers. The teachers have accepted this gradually and co-operate in every way. The first thing I imagine to do would be to get the confidence of the county superintendent of schools and get his co-operation, and this ought to be easy.

DR. RINDLAUB (closing): I want to thank the gentlemen and the ladies—ladies and gentlemen, rather—who have been so kind as to discuss this paper. There is one point I wanted brought out more than anything else, and it has been emphasized. It is that at this stage we should try to get as much of the work done by the teachers as possible. I do not mean to infer that we should not have some done by the physician and the nurse, if we can get them, but those of you who have tried to get any provision from county commissioners know how very, very stringent they are. I have thought sometimes we ought to change our state law. I hold in my hand a compilation of the laws of school inspection in the different states throughout the Union.

I think that seventeen of them require the teacher to conduct this examination; and in the statutes, embodied right in the body of the law, are the questions that have been compiled by the National Committee on Conservation of Vision. They are very short and comprise just nine. I will read them to you so that you may see how much they cover and how very comprehensive they are:

1. Does the pupil habitually suffer from inflamed lids or eyes?
2. Does the pupil fail to read a majority of the letters in No. 20 line of the Test-Types with either eye.
3. Do the eyes and head habitually grow weary and painful after study?
4. Does the pupil appear to be "cross-eyed"?
5. Does the pupil complain of earache in either ear?
6. Does matter (pus) or a foul odor proceed from either ear?
7. Does the pupil fail to hear an ordinary voice at twenty feet in a quiet room?
8. Is the pupil frequently subject to "colds in the head" and discharges from the nose and throat?
9. Is the pupil a habitual "mouth-breather"?

These are all simple questions, and yet, if you will take them and analyze them, you will find that the teacher is bound to find a great many defects if the child is observed carefully. The teacher, as I said before, is with the pupil all day long. Even a doctor who is brought in to make a cursory examination, as I know has been done in some cases, will not detect a great many things that the teacher does, and it is for the reason that so many physicians look so lightly upon the examination by the teachers that I have felt constrained to bring that phase of the subject to the attention of this Association.

## PUERPERAL ECLAMPSIA\*

By O. R. WRIGHT, M. D.

HURON, SOUTH DAKOTA

I wish to state, by way of introduction, that, in offering this paper to this Association, it is done only to call attention of the general practitioner of obstetrics to conditions that may arise, and often unexpectedly, which will tax every resource of the most skillful obstetrician, require all the science of the expert internist, and, in a large number of cases, if a successful termination is to be reached, demand all the skill, art, and equipment at the surgeon's command. The obstetrician in general practice is often lulled into reposeful carelessness by a long series of confinement cases that offer in their conduct no difficulties which especially tax his skill or equipment. This may continue over a period of many years. In my own practice in the first two years I saw one case of eclampsia, which followed a

twin pregnancy and was very easily handled. In the subsequent twenty years of active work, covering over eleven hundred cases, I saw not a single case in which convulsions developed. True, some cases showed indications that would have possibly resulted in the dread termination, but, under the ordinary stock treatment, I seem to have been able, or at least thought I was able, to carry my patients safely through, and of course my confidence had grown somewhat secure in the efficiency of such treatment. But during the years of 1914 and 1915, which will always be red-lettered years in my memory, there came a time when many of my cases seemed to develop complications of one type or another; and in a period of six months I was so unfortunate as to see six cases of puerperal convulsions of a grave type. I shall present each of these cases to you

\*Read at the 35th annual meeting of the South Dakota State Medical Association at Aberdeen, May 23 and 24, 1916.

briefly, and give the history of each as I think there is some lesson in the history.

CASE 1.—M. S., an American, aged 24. Family history good. A happy, well girl until married. Marriage was unfortunate, and terminated in divorce in the last months of pregnancy. Albumin began to show in the urine in the latter part of the sixth month. Albumin abated at times by diet. Patient nervous and morbid. Albumin increased, and diet had no effect. Symptoms of general intoxication increased, and eclampsia developed with first labor pains, warning of the onset having been given by severe frontal headache and disturbance of vision. The patient was taken to the hospital as soon as possible, and put under chloroform. Had three convulsions of grave type before operation for delivery was begun. Found the cervix partly dilated and the uterus soft. Decided to dilate the cervix by force. Did so with hand quite rapidly, and the patient had no farther convulsion while doing so. Podalic version with forceps to after-coming head. Child was moribund, and was restored after about one hour artificial respiration. Weight of child, seven pounds. Three convulsions followed labor at irregular intervals. Considerable damage to cervix and vaginal canal, which was repaired and with fairly good results. Patient was unconscious for thirty-six hours. Use of hot packs was begun two hours after delivery. Veratrum and procloysis by the drop method of sterile water at two-hour intervals. This patient recovered gradually, but rather slowly, and was discharged at the end of three weeks. Morphine was given at intervals during the first week to keep the patient at rest.

CASE 2.—Mrs. S. M., an American, aged 43. Multipara; nervous temperament; youngest child, 17. Very unhappy and worried over husband suffering from nephritis. Much concerned over outcome of pregnancy, as she believed herself to be reaching the menopause until the third month. Albumin showed in urine about thirty weeks following a severe attack of la grippe. Severe and irritating bronchitis and cough; confined to bed and diet four weeks before eclampsia, which came on in about the thirty-fifth week. Eclamptic symptoms twelve hours in advance; anuria and rapid heart. Unable to ward off the attack, which came at 8:30 P. M. Very violent convulsions followed each other at ten-minute intervals. The patient was removed to hospital; and after several hours attempt, was unable to dilate sufficiently. Operated at 4 A. M. doing a vaginal Cæsarian section as child was small. Child was delivered alive, weight four pounds, undeveloped, and lived only sixteen hours. The patient was unconscious thirty-six hours. Recovery uneventful and complete. Examination one year later shows smooth cervix with no scar visible.

CASE 3.—Mrs. C. C. H., age 24. Multipara; previous labor forceps delivery. Family history, negative. Small, weighing ninety-five pounds. Was called to see her with first pains; not seen previously. Found her in very violent convulsion. Removed to hospital at once under anesthesia. On examination was astonished by size of uterus and its almost square contour. Found cervix partially dilated. Finished dilatation, and found twin pregnancy with the chins locked. Podalic version, and rapid delivery. Infants weighing seven and

nine pounds. One had paralysis of left arm that fully recovered. Patient suffered much from shock for fifteen hours; rallied, and made quick recovery; discharged at end of two weeks.

CASE 4.—Mrs. H., a German, aged 30. Multipara; bilious temperament. Previous labors, normal. Family history, negative. Patient very much worried during last months of pregnancy by loss by fire of building and live-stock followed by loss of principal crop. Symptoms of eclampsia appeared two weeks previous to confinement. Patient in labor one hour, when I was called. She seemed stupid. Pains, light; no headache. Os dilated slowly. Pains not severe and far apart, contrary to previous labor. Went into convulsion three hours after labor began. First convulsion bad, and patient looked like death. Anesthetized with chloroform, and delivered quickly. No subsequent convulsions; child and mother were normal in ten days.

CASE 5.—Mrs. J. S., aged 34. Multipara; previous labors severe and terminated by instruments in each case. Family history, negative. Husband suffering from tuberculosis. Albumin in urine showed a few days after the husband had his first hemorrhage, but disappeared in the thirty-five weeks under treatment. Urine scanty with excess of urea. Would not persist in diet, and was careless as to treatment. Under constant worry on account of condition and finances. Labor at term. First convulsion very violent after the third pain. She had three convulsions before I was able to reach her. Cervix was fairly well dilated and finished with hand; was able to apply forceps and deliver rapidly with no damage. Uterus flaccid after delivery, and good deal of hemorrhage, which was allowed to go to some extent as patient was plethoric. Child asthenic, but under artificial respiration recovered. Weight, eleven pounds. Paralysis of left arm fully recovered in four months. Patient had severe hemorrhage fourteen days after delivery; cause undetermined. Is mentally more stupid than formerly; otherwise is normal.

CASE 6.—Mrs. G., French, aged 34. Nervous temperament. Previous labors normal. Had severe fright during fourth month. Little daughter was run over by an auto in her presence. No tangible symptoms, but patient became nervous and had morbid fear of death or giving birth to a deformed child. Failed in weight and general appearance. No disturbance of urinary secretion, though watched weekly. Two weeks before time for confinement I was called to see her at 9 A. M.; found her suffering from pain in upper part of chest, right side. Complained of nausea during night, which she attributed to indigestion caused by party supper the night previously; no headache, but on close question did remember being dizzy for a few minutes in the morning. Blood-pressure normal, and pulse 80. Ordered her to bed much against her will, and began treatment. Urine passed at 11 A. M. was normal. At 2 P. M. pain in the chest had disappeared, and the patient wanted to dress. At 4:30 P. M. I was called by attendant who said the patient had gone to the bath-room and fainted. Found her a few minutes later recovering consciousness. Mind was clear. She said she had been sick at her stomach and felt faint when she went to the bath-room. I had called my assistant, expecting to operate when called

the last time. She was in such good condition, and there was so little symptom of eclampsia that we decided to wait and watch her. Remained with her for three hours with no further indications, and left her very comfortable at 11 P. M. with orders to her nurse not to leave her during the night. Was called at 4 P. M., and found her dead. Nurse said she had slept until about twenty minutes before calling me, when she awoke, and asked for some of the medicine she had taken the day before for pain in her chest. The nurse told her that she would ask me. On returning from the phone she found her in convulsion, and she died almost instantly.

All these cases were treated on the theory that eclampsia is due to faulty elimination. The convulsions were controlled as much as possible with an anesthetic until the uterus was emptied. No patient suffered from infection after operation. All were given proctoclyses of water by drop for three days after delivery, as I abandoned salt solution some time ago in kidney disturbances. All that lived to be delivered recovered. The one child that died after delivery was either a seven-month or an undeveloped baby. Regional paralysis all recovered without treatment.

Four of the six patients were in the hospital, and operations were done with the best assistance.

#### DISCUSSION

DR. FRED TREON (Chamberlain): I do not think that so valuable a paper as this should be allowed to go by without some discussion. It is interesting, and every practitioner who does much obstetric work will have such cases to contend with, unless he is very fortunate.

I congratulate the doctor on such a low mortality, he having lost only one case out of six. I have seen six or seven cases of puerperal eclampsia, and have lost about one-half of them. They were seen in the country, and we were unable to get the patients into the hospital. I believe where these women can be gotten into a hospital, and such treatment as the doctor mentioned given them, their prospect for recovery is much better.

DR. H. W. SHERWOOD (Doland): I have been very much pleased with this paper. One may be engaged in the practice of medicine for years before he meets with cases such as the doctor has reported, and then suddenly he may be confronted by a case of puerperal eclampsia. I was practicing medicine ten or twelve years before I saw a case of puerperal eclampsia, and then all of a sudden I was called to see a woman who had been in very good spirits and presented no abnormal symptoms until shortly before I saw her. However, when I saw her, with a sudden turn of the head she went into a convulsion, and turned black to the waist-line. I put her under an anesthetic immediately, made forcible dilatation, and after I delivered her she had another convulsion. The child was undeveloped, and died at the end of two days.

Dr. Wright's cases were very interesting, and the lesson I got from his paper was the necessity of keeping

track of our obstetrical cases, and of knowing how they are doing beforehand.

Since my first case I have had four other cases that presented all the signs and symptoms that go with eclampsia, such as albuminuria, high blood-pressure, convulsions, and headaches. and under such treatment as the doctor has described they have made good recoveries. One of my patients had a blood-pressure of 212, another a blood-pressure of 200. They had headaches and slight convulsive movements, with all of the symptoms of approaching eclampsia; but under treatment they all came through.

DR. F. E. CLOUGH (Lead): I would like to ask permission to cite a case of puerperal eclampsia which was one of the most interesting cases I have ever seen. The woman was about four or five months pregnant. She had marked symptoms of nephritis, and we thought the wisest thing to do was to bring on abortion as she was close to the end of the child-bearing period. However, as she had had no children, she was very anxious to go on, and, if possible, carry this child to term. On Thanksgiving eve, when we were all out to dinner, she had a convulsion. We had her taken to the hospital, gave her as little of the anesthetic as necessary, started to dilate, and secured about an inch of dilatation when the doctor, who was giving the anesthetic, said she was absolutely pulseless. We took his advice, and put her to bed. We told the husband at the time that his wife would undoubtedly die. During the night she had three or four more convulsions and was practically pulseless. However, by morning the pulse improved, and was fairly good, although extremely rapid. We explained to the husband the condition his wife was in, what was necessary to do, and he finally agreed that we should do whatever was best for her. We went ahead. We got about three-quarters dilatation, when the doctor again said that she was pulseless. I was the man behind the gun. In dilating the cervix and introducing my hand I thought I had hold of the child's head. I gave a pretty good pull, and there rolled out on my hand what I thought was about a four-months fetus and with it a handful of intestines. I exclaimed, my God, what have we got here! Instead of pulling out the fetal head, I pulled out a fibroid which went through the wall of the uterus. I delivered the fetus and after-birth, slipped back the intestines, elevated the foot of the bed, and the woman made an uneventful recovery. (Laughter.)

This case illustrates how good the Lord is to some of our patients.

DR. A. E. JOHNSON (Watertown): There is one point that I desire to call attention to and to emphasize, and that is, that our patients in the country should generally notify us in advance when they are liable to be confined. I think we ought to insist on our patients notifying us of their expected confinement, and bring in specimens of urine. I have one case in point which will illustrate the necessity of this; it was several years ago. The patient lived in the country six or eight miles from my town, and I did not see her until I was called to deliver her. There were no signs of nephritis or anything of the kind at the time. I never made any examination of the patient. I had not seen her before. I delivered her of a twin pregnancy. Both children were healthy and alive. When I left her she seemed to be in a normal condition. I went back to town, and



six hours afterward I was called to come in a hurry as the woman was dying. I went back and found her in eclamptic convulsions. The convulsions were very severe. She was in coma when I arrived, and remained in that condition for several hours. I was fortunate in getting an unusually good nurse, and by very strenuous efforts we managed to pull her through. We used hot packs and other measures.

What I want to emphasize more particularly is that we should educate these patients to bring in specimens of their urine beforehand so that we may know what to expect. That woman had all the license in the world to die. There was no other doctor in the neighborhood available at the time, and if I had been out on another call she would have died before they could have obtained any help. Where we can get these patients early we can generally take care of them and pull them through, particularly if we have them in a hospital. In a farmhouse it is a different proposition. I desire to put myself on record as strongly in favor of educating these women to bring in specimens of their urine so that we may determine their condition. It seems to me, we ought to refuse to attend such cases unless they do this, or tell them that we will not take charge of their case unless they notify us in advance and supply us with specimens of urine.

DR. H. T. KENNEY (Pierre): I do not believe there is any section of the country where albuminuria is so prevalent as it is west of Pierre, and doctors will see more cases of puerperal eclampsia from that section than from any of the others. The blood-pressure is high, particularly of those living forty or sixty miles from Pierre.

One important point is to warn these patients to watch the amount of urine they pass in twenty-four hours. If they come to town you can warn them to have specimens of their urine brought to you every month. This is very necessary, but the one thing to tell them is to have their blood-pressure taken when they come in, and, if they tell you the amount of urine they pass in twenty-four hours and you take their blood pressure, I do not think you will have anywhere near as many cases of eclampsia to contend with.

DR. WILLIAM R. BALL (Mitchell): I heartily agree with what has been said, that a preliminary examination of the urine of patients approaching confinement is the proper thing.

I wish to report briefly a case that occurred on the second day of May. The woman was a primipara. She brought in specimens of her urine once a month from the third month of pregnancy up to the eighth, and there was no albumin found in her urine. It was in good condition. She had the usual labor pains: they were moderately severe, and the duration of labor was eighteen hours, but after the delivery of the placenta she had her first convulsion. This case shows that even though we examine the urine up to the time of labor the woman may possibly have a convulsion.

It has been estimated that the proportion of eclamptic cases is one in five hundred, and that probably accounts for the infrequency with which practitioners see these cases. I have been practicing fourteen years, and during that time I have seen six cases of puerperal eclampsia.

We make it a rule in our section of the country to examine the urine of these women and to take their

blood-pressure, but we do not know how many cases of eclampsia we have prevented by that means.

It is necessary after the eclamptic attack is over to watch the patient closely, and after you have the renal function established, see that the kidneys are entirely free from the condition. The giving of citrate of potassium, five to ten grains three or four times a day, will assist very much.

There is one thing I used on the patient I had the second day of May, and that was the drip method, that is, dissolving a teaspoonful of sugar in a quart of water. This patient made a very happy and uneventful recovery. The urine at this time showed a low percentage of albumin.

DR. G. H. TWINNING (Mobridge): I recall a case that came under my observation several years ago. I think Dr. McCauley saw her, although he was not the attending physician. We saw the patient in consultation, and, as a result of that consultation, we thought of doing a Cesarean section; but the woman delivered herself spontaneously, and everything indicated that the woman was going to get along all right.

In another case where the woman was delivered by forceps she had one convulsion; but both mother and child made uneventful recoveries.

As the result of this attack another woman came to me later, and asked me about my office hours. I told her, and in hearing from her a few days later we found that she was vomiting incessantly. Her pulse at the time was 80, but her urine was negative. The next morning, after continuous vomiting, which kept up for many hours, her pulse jumped up to 140, and albumin appeared in the urine. We immediately took her to the hospital, and delivered her of a pair of twins. One weighed four pounds, and the other four and one-half pounds. Both mother and children made complete recoveries.

DR. F. C. TOTTEN (Lemmon): I saw a case of eclampsia three days prior to the time I was called. The woman was eight and one-half months pregnant. I made an analysis of the urine and found no albumin. She was thirty-one years of age, and a primipara. I saw her in the evening at about 11 o'clock, at which time she was feeling very well. The next morning, at 8 o'clock, I received a call. She was unconscious. I secured some assistance, gave her an anesthetic, dilated as well as I could, was unable to deliver her, did version, delivered the child, and two hours afterward the woman died.

DR. ROBERT HART (Turton): My experience with eclampsia has been more extensive than one would expect from the number of cases I have handled. I had six cases of eclampsia in nine years of practice. Of this number, some of the women were seen before the condition arose. The first case was seen with Dr. Newell, and after considerable effort we managed to deliver the child, which had evidently been dead for a number of hours.

The second case I saw with Dr. Johnson of Watertown. We saw the patient about eight weeks before term. The woman was in a convulsion before either one of us saw her. We were able to save the mother, but not the child. The child lived about twenty-four hours.

A third case was seen with our Dr. ————. The woman did not have a convulsion. I had been watch-

ing her for five weeks, and recognized that she had albuminuria. I made a serious effort to decrease it, without effect. I call it eclampsia because she had marked albuminuria. She had headache before we induced labor. She had severe headache with epigastric pain, and after we made an attempt to induce labor and delivery was accomplished she was stone blind and remained so for two weeks.

My fourth case was one in which we were able to save both mother and child after a great deal of hard work. Most of the hard work was trying to convince the family of the necessity of interfering. This was a great deal harder than the accomplishment of the delivery of the child.

My last case was one that I saw in South Bend, Indiana. I was called to take charge of a mother by a physician who apparently felt his incapacity. He had first seen the patient, or had known of her, that morning. Examination of the urine showed very marked albuminuria. He had business elsewhere, and sent the case to me. She showed all the characteristic symptoms of the pre-eclamptic state, not a severe grade, except there were few eye symptoms. I induced labor at once, and delivered her of two eight-pound boys. There were two cases in which I had twin pregnancies. We avoided convulsions, but I still believe it was true eclampsia, although a convulsion did not come on.

DR. WRIGHT (closing): The fact that so many have reported eclampsia in twin pregnancies bears out the theory of high blood-pressure. Excessively large children also bears it out. But there is something more

than that, because the pre-eclamptic woman shows symptoms of nervous disturbance long before high blood-pressure begins, in my experience, and it is the experience of obstetricians who have followed these cases.

Most of you agree that active operative interference should be instituted as soon as eclamptic convulsions take place, but that is not accepted among obstetricians. A great many advise to let these women go on with convulsions, and see if they do not deliver themselves.

In the experience I have had I did not find a rigid uterus, but a soft one, and I did not find any expulsive pain. In none of these cases was there any expulsive pain. The cervix was soft and flabby, more than it was rigid, but there was no expulsive pain or no attempt on the part of the fetus to descend into the pelvis. That has been my experience in the cases I have operated upon by one method or another, and I wish to say that I think I could tell some of the doctors why patients die quickly after the forcible delivery of the child. It is because they had a uterus that was not open, yet they put on forceps, resorted to podalic version, threw the uterus wide open, and the woman bled to death. If you have a uterus that is soft and a good large cervix, you can turn the child and deliver with forceps. If you have not got it, do not wait to dilate the cervix forever. It is easy enough to go in one way or the other if you are properly equipped to do the work. If you do not watch these cases where you can take care of them, most of them are going to die if they do not receive the proper treatment at the proper time.

## PROGRAM, MINNESOTA STATE MEDICAL ASSOCIATION, ANNUAL MEETING, 1916

At Radisson Hotel, Minneapolis, Minnesota, October 12th and 13th

House of Delegates will meet October 11th at 2 p. m. at Room 120, the Radisson Hotel.

### OFFICERS

J. Warren Little, M. D., Minneapolis.....President  
J. J. Donovan, M. D., Litchfield...First Vice President  
A. C. Rogers, M. D., Faribault...Second Vice President  
C. O. Wright, M. D., Luverne...Third Vice President  
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### COMMITTEE OF ARRANGEMENTS

Representing Hennepin County Medical Society  
A. E. Benjamin, M. D.  
C. G. Weston, M. D.  
W. A. Jones, M. D.

### PROGRAM COMMITTEE

#### Section in Medicine

G. D. Head, M. D., Minneapolis.....Chairman  
E. L. Tuohy, M. D., Duluth.....Secretary

#### Section in Surgery

Arnold Schwyzer, M. D., St. Paul.....Chairman  
Donald Balfour, M. D., Rochester.....Secretary

All papers must be handed to the stenographer after reading

Papers as read at the meeting will be limited to fifteen minutes, and each discussion to five minutes.

### SANITARY CONFERENCE

Wednesday, October 11, 1916, 8:00 p. m. Gold Room, Radisson Hotel.

Presiding: George E. Vincent, President, University of Minnesota.

1. Role of the Visiting Nurse, I. J. Murphy, M. D., Acting Executive Secretary, Minnesota Public Health Association.

2. State Board of Health Activities, H. M. Bracken, M. D., Secretary and Executive Officer, Minnesota State Board of Health.

3. Address, G. B. Young, M. D., United States Public Health Service.

### SECTION IN MEDICINE

Thursday, October 12, 1916, 9:00 a. m. Meeting-place: Empire Room, Radisson Hotel.

Chairman, Geo. Douglas Head, M. D., Minneapolis; Secretary, Edward L. Tuohy, M. D., Duluth.

#### Research Division

1. Recent Advances in our Knowledge of the Active Constituent of the Thyroid: Its Chemical Nature and Function. E. C. Kendall, Ph. D., Rochester. (10 minutes.)



**Abstract:** Chemical investigation of the constituents of the thyroid secretion has resulted in the isolation of a crystalline compound containing 60 per cent iodine. This single substance possesses the physiological activity of the thyroid. Its effects have been followed in respect to growth, mentality, the skin, hemoglobin and metabolism.

2. A Study of Circulatory Phenomena Associated with the Function of the Thyroid. H. S. Plummer, M. D., Rochester. (10 minutes.)

3. Histopathology of the Autonomic Nervous System in Goiter. L. B. Wilson, M. D., Rochester. (10 minutes.)

**Abstract:** Discussion of lesions in the cervical sympathetic ganglia in exophthalmic goiter; relation to simple goiter; relation to changes due to senility and to chronic wasting diseases; preliminary report on experimental production of changes in laboratory animals; changes in the cervical sympathetic ganglia in fish affected with thyroid hyperplasia.

Papers 1, 2 and 3 will be discussed together. Discussion will be opened by Dr. A. D. Hirschfelder and Dr. L. G. Rowntree, Minneapolis.

4. The Hematopoietic-Hemolytic Index: A Proposed Determination Helpful in the Differential Diagnosis of Types of Pernicious Anemia Amenable to Cure via Splenectomy. John Schneider, M. D., Minneapolis. (10 minutes.)

**Abstract:**

1. Insufficiency of routine blood study for diagnostic purposes. Advisability of supplementing same with study of duodenal blood-derived pigments.

2. Brief review of cases studied with reference to pigment output.

3. The readiness with which enteric bleeding anemia with a pernicious-like blood-picture can be distinguished from the genuine splenic.

4. The determination of the hematopoietic-hemolytic index for purposes of aiding in the selection of cases favorable for splenectomy.

5. Proportion of cases studied showing plus index.

Discussion to be opened by Dr. H. Z. Giffin, Rochester, Minn.

5. Observations on the Occurrence of Urobilinogen and Urobilin in the Urine of Pregnant and Non-pregnant Women. Elizabeth Barnard, M. D., Minneapolis. (10 minutes.)

**Abstract:** A brief discussion of the sources of these pigments and a description of the tests used, followed by a report of one thousand determinations representing about two hundred and fifty cases. Showing daily variations in the same individual and the relation, if any, to the occurrence of indican in the urine.

Discussion to be opened by Dr. E. L. Gardner and Dr. F. L. Adair, Minneapolis.

6. Standardization of Digitalis. Potency of the Minnesota Leaf. R. E. Morris, M. D., Minneapolis. (10 minutes.)

**Abstract:** Historical. The diverse results obtained in Digitalis Therapy. The more recent methods, with the help of mechanical devices, has created a new digitalis therapy.

Digitalis: its culture; the preservation of the leaves; its potency and activity. Estimation of therapeutic values. Assaying. Cat method modified to our use. The cat unit application. The Eggleston method of digitalis dosage. Minnesota-grown digitalis. Comparison with that grown in other localities. The promise of one of the digitalis group now little used.

7. Blood Agglutination: Methods and Some Experimental Considerations. J. B. Turner, M. D., Minneapolis. (10 minutes.)

Discussion opened by Dr. A. H. Beard.

8. The Recording of Reflexes, Tremors and Muscular Movements by Galvanometric and Mechanical Methods. R. E. Morris, M. D.; H. W. Woltmann, M. D., Minneapolis. (10 minutes.)

**Abstract:** Importance of recognition of tremors and reflexes. Every day observations. The relation of tremor reflex and clonus to health, fatigue and disease. No accurate older methods of their determination and registration. Graphic methods and their advantages. Various devices in use. The Tremograph and its use. The string galvanometer and its adaptability to securing accurate records. The demonstration of some records with discussion of their significance.

Discussion opened by Dr. A. S. Hamilton, Minneapolis.

Thursday, October 12, 1916, 2:00 P. M. Meeting-place: Empire Room, Radisson Hotel.

#### Symposium on Syphilis

1. Syphilis in the State of Minnesota. H. G. Irvine, M. D., Minneapolis. (15 minutes.)

**Abstract:** Syphilis is a public health problem. What other states are doing. Syphilis in Minnesota.—Conclusions.

Discussion opened by Dr. H. M. Bracken, Secretary and Executive Officer, State Board of Health, St. Paul.

2. The Spinal Fluid in Diagnosis and Prognosis and Treatment of Cerebrospinal Lues. C. R. Ball, M. D., St. Paul. (15 minutes.)

**Abstract:** The necessity in diagnosis of regarding the spinal fluid reaction as symptoms. The importance of the reactions individually and collectively. Differential diagnosis from the spinal fluid findings. The importance of spinal fluid examinations in all obscure conditions, physical as well as nervous.—Conclusions.

Discussion opened by Dr. A. S. Hamilton, of Minneapolis, and Dr. C. E. Riggs, St. Paul.

3. Cardiovascular Expressions of Late Syphilis. Chas. L. Greene, M. D., St. Paul. (15 minutes.)

**Abstract:** A summary of modern conceptions of the rôle played by lues in cardiovascular lesions. The modern use of the Wassermann and luetin tests and their interpretation. A general grouping of cardiac lesions along more modern lines. The substantiation of the relationship between such vascular lesions as aneurysm and early syphilis, pointing the advantage of early treatment. A discussion of the different valvular lesions, whether isolated or combined. A discussion of the juvenile type of aortic stenosis. A general appeal for better understanding of the etiology and symptomatology of luetic cardiovascular lesions.

Discussion opened by Dr. S. Marx White, Minneapolis.

4. Clinical Signs of the Diagnosis of Obscure Forms of Syphilis of the Nervous System. Arthur S. Hamilton, M. D., Minneapolis. (15 minutes.)

**Abstract:** The double influence of laboratory tests (a) in making certain the diagnosis of syphilis; (b) in lessening the interest in clinical methods.

A consideration of (a) the family history; (b) the history of infection.

The early symptoms. Physical signs.

Discussion opened by Dr. W. A. Jones, Minneapolis.

5. Tetanus. H. E. Robertson, M. D., Minneapolis. (15 minutes.)

6. Observations and Experiences with the Allen Treatment for Diabetes. C. P. Robbins, M. D., Winona. (10 minutes.)

**Abstract:** Report of cases. Discussion of the principle. Complications. Questions arising which cases shall return to their former condition and discontinue the Allen treatment.

Friday, October 13, 1916, 9:00 A. M. Meeting-place: Empire Room, Radisson Hotel.

1. Secondary Anemias of Doubtful Causation. T. R. Martin, M. D., Duluth. (15 minutes.)

**Abstract:** A report of a series of cases of anemias of severe grade, in which the typical picture of pernicious anemia has never been approximated. A discussion of their probable etiology, with syphilis as a probable factor in a certain percentage.

Discussion opened by Dr. E. L. Gardner, Minneapolis.

2. Clinical Studies of Digitalis, with Especial Reference to the Minnesota Plant. S. Marx White, M. D.; R. E. Morris, M. D., Minneapolis. (15 minutes.)

**Abstract:** A study of the effects of digitalis as shown by clinical results and recorded by the polygraph and electrocardiograph. The Eggleston method of administration, as controlled by standardization with the Cat method (Hatcher). The clinical study of the potency of the Minnesota-grown leaf. The selection of cases and caution to be observed in administration.

Discussion opened by Dr. Chas. L. Greene, St. Paul.



## Symposium on X-Ray Diagnosis

3. Practical Value of Röntgen Ray in Gastro-intestinal Diagnosis. Hugh S. Willson, M. D., Minneapolis. (15 minutes.)

Abstract: What is expected from Röntgen ray in the way of definite findings in gastro-enterologic diagnosis. A trip down the gastro-intestinal tract, giving the more common conditions which can be definitely shown.

4. X-ray Diagnosis of Non-tuberculous Lung Diseases. Alexander B. Moore, M. D., Rochester. (15 minutes.)

5. The Practical Application of the Röntgen Ray in the Diagnosis of Pulmonary Tuberculosis. Frank Bis-sell, M. D., Minneapolis. (15 minutes.)

Abstract: Need of a specific "Röntgen Sign Complex" which can be clearly defined and taught to medical students. A patho-anatomical basis for certain markings constantly observed in röntgenograms of tuberculous lungs. Are they pathognomonic? Abstract of replies to questionnaire. Points in differential diagnosis. Grouping and reports of cases. Importance of the independent study of cases, with close co-operation by internist and röntgenologist.

The discussion on papers 3, 4 and 5 to be given after all three papers are read.

Discussion opened by Dr. E. T. F. Richards, St. Paul, and Dr. R. D. Carman, Rochester.

## SECTION IN SURGERY

Thursday, October 12, 1916, 8:30 A. M. Meeting-place: Gold Room, Radisson Hotel.

Chairman, Arnold Schwyzer, M. D., St. Paul; Secretary, Donald C. Balfour, M. D., Rochester.

1. Tubal Pregnancy. Dr. M. M. Ghent, St. Paul.

Abstract: Tubal pregnancy frequent, very important, and often overlooked. In doubtful cases the diagnosis can be made, after rupture, by passing a small trocar into the cul-de-sac of Douglas just posterior to the cervix. The presence of blood makes the diagnosis almost sure. Treatment is surgical as soon as the diagnosis is made.

Discussion opened by Dr. Robert Earl, St. Paul.

2. The Technic of Nerve Repair. Dr. J. F. Corbett, Minneapolis.

Abstract: This paper is intended to emphasize the necessity for early operation on injuries of nerves. In addition various methods of re-establishing the continuity of motor nerves will be discussed. In discussing the technic, the common causes of failures for nerve anastomosis will be emphasized and as far as possible the remedy for this. The purpose of this paper is to suggest a simplified technique that can be used at a time when operation is most indicated.

Discussion opened by Dr. Earle R. Hare, Minneapolis.

3. Spinal Cord Tumors. Dr. E. H. Beckman, Rochester.

Abstract: Symptoms of cord tumors compared with other cord lesions. The significance of root pains and level symptoms. Errors in diagnosis due to root pains. Surgical treatment: report of cases.

Discussion opened by Dr. Charles R. Ball, St. Paul.

4. Some Operative Procedures in Old Cases of Infantile Paralysis. Dr. Emil S. Geist, Minneapolis.

Abstract: Operative surgery is distinctly contraindicated during the acute and convalescent phases of infantile paralysis. After the onset of the chronic phase, however, it has become the means of relieving many patients from the thralldom of braces. The most common and successful types of operation are designed (1) to correct deformity; (2) to insure stability; (3) to obviate the necessity of wearing for life a cumbersome, easily-deranged appliance. The paper shows how these desirable results can be obtained in deformities of the foot following infantile paralysis. (To be illustrated by lantern slides.)

Discussion by Dr. M. S. Henderson, Rochester.

5. The Surgical Limitations of the General Practitioner. Dr. J. H. Adair, Owatonna.

Discussion opened by Dr. W. L. Palmer, Albert Lea.

6. Prophylactic Episiotomy. Dr. Frederick Leavitt, St. Paul.

Abstract: Incision of the introital ring as the head is about to be born; a deliberate wound made to one side or the other of the median line, easily repaired, and away from the contaminating discharges. Of chief utility in first labors, especially when rupture seems imminent. A conservative measure designed to preserve the perineum and lower end of the birth canal. Various methods described and advantages discussed.

Discussion opened by Dr. Emil King, Rulda.

7. Spontaneous or Non-Traumatic Rupture of the Left Kidney. Dr. G. J. Thomas, Minneapolis.

Abstract: A rapid survey of the literature on the subject shows how rare is the occurrence of non-traumatic rupture of the kidney, and analyzes the mechanical forces which contribute to its production. In the author's reported case the course of a ruptured hydronephrosis is given in detail with incidental observation on the possibility of a functionless kidney, or one with stone-formation being without symptoms when the other kidney is sound. The conclusion is reached that rupture may take place without trauma, but probably occurs only when preceded by pathologic change. Operative measures afford the only chance of relief.

Thursday, October 12, 1916, 2:00 P. M. Meeting-place: Gold Room, Radisson Hotel.

1. Treatment of Carcinoma of Uterus. Dr. Theodor Bratrud, Warren.

Abstract: Carcinoma of the uterus causes early symptoms which can always be interpreted. Uterine carcinoma remains long localized. Early diagnosis with prompt surgical treatment gives lasting results and low operative mortality. Need of extensive educational campaign to educate public in the importance of early cancer symptoms. Large part of medical profession are not recognizing early cancer symptoms, and dally with palliative measures until case is hopeless. Methods of treatment. Early operation is best known treatment at present date. X-ray and radium are palliative in many cases, but the percentage of cases cured is not satisfactory. Radium may prove a valuable adjuvant as pre-operative and post-operative measure. Further observation needed. In cervical carcinoma the Percy cauter, with ligation of internal iliac arteries followed by hysterectomy, promises better results than previous modes of treatment. The mortality rate of the Wertheim operation too high. Simple hysterectomy is a satisfactory operation in early stages of adenocarcinoma of fundus.

Discussion opened by Dr. Archibald MacLaren, St. Paul.

2. Some Consideration of the Subject of Ureteral Stone. Dr. Oscar Owre, Minneapolis.

Abstract: It is not the purpose of the paper to cover the entire subject of ureteral stone. It considers the value of the Röntgen ray as a diagnostic aid, together with a discussion of how much dependence can be placed upon the elastic, radiographic, and wax-tipped catheter, and the importance of a complete röntgenogram of the entire genito-urinary tract.

Pain: When located in the upper and lower right quadrant is often confused with gall-bladder and appendiceal disease.

Urinanalysis: Sometimes negative. Too much reliance cannot be placed on the finding of blood or pus.

Report of a few cases together with x-ray photographs, with special reference to the radiographic catheter.

Removal of stone by palpation, cystoscopic and surgical methods.

Discussion opened by Dr. Franklin R. Wright, Minneapolis.

3. Indications for Cesarean Section. Dr. W. A. Coventry, Duluth.

Abstract: Operation twenty years ago as compared with today. Choice of methods. Indications for each method. Value of obstetrical diagnosis and conservatism in making the diagnosis.

Discussion opened by Dr. J. C. Litzberg, Minneapolis.

4. The Internal Secretion of the Ovary. Dr. J. L. Rothrock, St. Paul.

Abstract: (1) that the ovary elaborates an internal secretion, is not established beyond dispute; (2) both clinical and experimental observations point to the Corpus Luteum as being the source of origin; (3) of its chemical constitution little is definitely known, less perhaps than that of any other internal secretion; (4) the substances recovered from the gland have a limited range of physiological action, chief among which is the increasing of blood-pressure and slowing the heart's action; (5) the most important function of the internal secretion of the ovary has to do with implantation and the development of the

ovum in the early months of pregnancy. In addition, most of the phenomena attending menstruation are now interpreted as evidence of the activity of the internal secretion of the ovary; (6) the reports from the application of ovarian products in therapy are still conflicting and no uniform results have been attained.

Discussion opened by Dr. F. L. Adair, Minneapolis.

5. Mastoiditis: Some Remarks Upon the Prevention, Operative Indications and Operative Technic. Dr. Frank C. Todd, Minneapolis.

Abstract: Typical and modified causes of the development of mastoid abscess, with analysis of causes of the varied manifestations. Signs, symptoms, and methods to determine the question as to whether or not, and when, operation is required. If operation is necessary, the earlier it is performed the better, because of the danger of worse complications, because of shortening the period of illness and because of the more prompt and satisfactory healing. Some remarks upon the technique of the operation for acute mastoiditis.

Discussion opened by Dr. Carl Fisher, Rochester.

6. Tuberculosis of the Spine: End-Results of Operative Treatment. Dr. M. S. Henderson, Rochester.

Abstract: The methods of Hibbs and Albee are similar in that both attempt to obtain a bony ankylosis of the spine in the affected area by the formation of a bony splint on the posterior surfaces of the vertebral bodies, the former by an osteoplastic technic and the latter by transplantation of bone. Both Hibbs and Albee and others have demonstrated that this can be done. Correct technic is essential to success. The body of the paper reports the clinical results of a series of 81 cases. The results show that these operations are deserving of a definite place in the armamentarium of the surgeon treating tuberculosis of the spine.

Discussion opened by Dr. Alex R. Colvin, St. Paul.

7. Local Anesthesia and Narco-Local Anesthesia in General Surgery. Dr. R. E. Farr, Minneapolis.

Abstract: Considerations governing the choice of an anesthetic. First: The question of safety. Second: The anesthetic must allow the surgeon to deal adequately with the existing pathology. Third: The comfort of the patient. The first and second being equal, the third might be the deciding feature in the choice of an anesthetic.

All anesthetics are protoplasmic poisons. Novocaine is most safe. The possibility of enlarging the scope of efficiency. The psychic element; the element of time.

Discussion opened by Dr. Herman A. H. Bouman, Minneapolis.

Friday, October 13, 1916, 8:30 A. M. Meeting-place: Gold Room, Radisson Hotel, Minneapolis.

1. Artificial Vagina. Dr. J. E. Engstad, Minneapolis.

Abstract: One case in ten thousand. All operations based on plastic surgery are doomed to failure due to scar-contractions. A normal organ can be improvised by the utilization of a double segment of the smaller intestine. Result: A roomy organ of normal depth, difficult on cursory examination to diagnose from a natural one.

Discussion opened by Dr. D. C. Balfour, Rochester.

2. Treatment of Large Hernia by the Use of Silver Filigree. Dr. H. B. Sweetser, Minneapolis.

Discussion opened by Dr. A. N. Collins, Duluth.

3. New Methods of Operating for Difficult Hernia. Dr. A. T. Mann, Minneapolis.

Abstract: The conjoined tendon lacking below, often defective. The plication of the rectus sheath. A special use for the lower flap of the external oblique. The usual ineffectiveness of the transversalis fascia. The occasional effectiveness of the cremaster flap. The efficient service of fascial transplants in selected cases.

Discussion opened by Dr. A. Schwyzer, St. Paul.

4. Colon Resection with Preservation of Great Omentum. Dr. C. H. Mayo, Rochester.

Abstract: Importance of the omentum as an organ of great vascular capacity. Its value as an absorbent of abdominal fluids, both lymphatic and hemic, and its aid in peristaltic movement, affording anterior protection by its fat-padded vascular warmth. Protective function by its ready phagocytes and adhesions over infective areas.

Discussion opened by Dr. A. C. Strachauer, Minneapolis.

5. Diverticula of the Duodenum. Doctors Harry P. Ritchie and Golder L. McWhorter, St. Paul.

Abstract: Rarity of the condition as a surgical entity. Discussion of origin and selection of methods of operation. Report of a case, with demonstration of condition before and after operation.

#### JOINT SESSION

Joint program of the Medical and Surgical Sections, Friday, October 13, 1916, 2:00 P. M. Meeting-place: Gold Room, Radisson Hotel.

President's Address. J. Warren Little, M. D., Minneapolis.

1. Uremia: Etiology; Types; Diagnosis. L. G. Rowntree, M. D., Minneapolis. (15 minutes.)

Abstract: Old theories considered in the light of new facts. Various types from clinical and functional viewpoints. Essential factors in establishing the diagnosis. The influence of these upon therapy.

2. Demonstration of Certain Methods Used in Laboratory Investigations of Acidosis and Renal Function. J. M. Northington, M. D.; Floyd Graves, M. D., Minneapolis. (15 minutes.)

3. The Present Status of Acute Infections of the Kidney. Warren A. Dennis, M. D.; J. S. Gilfillan, M. D., St. Paul. (15 minutes.)

Abstract: Sources of infection. Avenues of infection. Factors contributing to localization. Bacteriologic considerations. Pathology. Types of involvement. Clinical types. Illustrative cases. Treatment.

4. Pylorospasm in Infants. J. P. Sedgwick, M. D., Minneapolis. (15 minutes.)

Abstract: Pylorospasm frequently mistaken for an impossible stenosis. Differential diagnosis including x-ray examination. Prognosis with proper medical treatment good. Histories of cases. Method of treatment. Late results.

Discussion opened by Dr. Jas. T. Christison, St. Paul.

5. The Elective Localization of Bacteria in Metastatic Disease. E. C. Rosenow, M. D., Rochester. (15 minutes.)

Abstract: Lesions produced experimentally in animals will be illustrated by means of charts, lantern slides, and gross specimens. The importance of chronic localized infections to metastatic diseases and their treatment will be discussed on the basis of clinical and experimental studies.

Discussion opened by Dr. L. G. Rowntree and Dr. H. E. Robertson, Minneapolis.

#### PROGRAM

Banquet at Roof Garden, Radisson Hotel, Minneapolis, Thursday, October 12, at 7 P. M. \$2.00 per plate. Orations in Medicine and Surgery will be delivered by our invited guests at the Banquet, October 12.

1. Oration in Medicine. Some Relations between Emotions and Glands of Internal Secretion. Dr. Walter B. Cannon, Prof. of Physiology, Harvard Medical School, Boston, Mass.

2. Oration in Surgery. Modifications in the Accepted Technic of Stomach Surgery. Dr. L. L. McArthur, Chicago, Ill.



# THE JOURNAL-LANCET

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OCTOBER 1, 1916

## THE MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Members of the Association are hereby notified that the meeting-place will be the Radisson Hotel, Minneapolis. The House of Delegates will have a room set aside for their deliberations. The Section on Surgery will meet in the Gold Room, and the Section on Medicine will meet in the Empire Room, which rooms are located on the second floor, making convenient, accessible, and delightful meeting-places.

The combined meeting of the Surgical and Medical Sections will take place Friday afternoon in the Gold Room. Thursday evening, October twelfth, the members of the Association will be given an opportunity to attend the banquet in the Roof Garden of the Radisson. This will consist simply of a dinner; and the price per plate will be two dollars. It was thought best to announce this beforehand, so that the Committee on Arrangements might be notified as early as possible as to the number of guests expected to present themselves at the banquet hall. In addition to the dinner the chief addresses, or "orations," will be given immediately following, consequently there will be no vaudeville performances and no excitements of any kind, except there are two distinct medical factions, one pro-

those which excite the admiration and interest of medical men, namely, to hear a well-known speaker deliver a prepared address on some timely subject. The Committee on Arrangements suggest that each man who expects to be present at the dinner simply drop a postcard to the manager of the Radisson, saying that he will be present. In this way we may get some outline about how many the hotel must provide for. It is suggested, too, that it would be a wise thing to make hotel reservations, particularly if visitors expect to stop at the Radisson. The hotel is very large, but it is not infrequently filled with guests, and a reservation of a few days beforehand may save a great deal of trouble.

The program is, as found in this issue, an excellent one; and the division into sections of medicine and surgery will probably prove more satisfactory than to have a meeting of both medicine and surgery throughout the entire section.

## THE STATE AND MEDICAL EDUCATION

Our readers will peruse with interest the paper in this issue by Dr. George Douglas Head, as it was his presidential address before the Minnesota Academy of Medicine. The paper is interesting, for it deals in a very dignified and a very comprehensive manner with the difficulties through which the Medical School of the University of Minnesota has been passing. It is probably the first time that any medical journal has published the status of affairs showing how the faculty was reorganized three years ago. It also discusses the affiliation between the Mayo Clinic and the University. These various points are brought out with great clearness, and the paper demonstrates the principles involved in medical education by the State. It re-enforces the opinion that has been heard for many years and from many different professional men, namely, that the State should take care of its own, and that no violation of this principle should ever be attempted.

The paper discusses the University in its conception, the appointment of the Board of Regents, and the policies that were enforced years ago, and have been recently changed and put into more vigorous force. It speaks also for the freedom of speech among University teachers, and it also calls particular attention to the fact that the recent combinations have affected the harmony of the medical profession throughout Minnesota; and those who are at all familiar with the situation will readily understand why



University and the other anti-University. This is a very serious state of affairs, as it was known for many years that the medical profession of Minnesota was united and harmonious, but now it is divided, and the factions oppose one another in many things, which is a deplorable situation, and it may take years to readjust matters.

For the time being, medical education in the state of Minnesota is in the hands of a very few men, and these are among the older members of the faculty, but the time is coming when these older men will drop out, their activities will become lessened, and the younger men will come to the front,—a thing that lights our hope for something better, something truer and infinitely more harmonious.

Dr. Head's paper merits the closest attention.

#### STATE CARE OF CHILDREN CRIPPLED BY INFANTILE PARALYSIS

Death has claimed 69 victims of infantile paralysis since January 1, 1916. Of the 600 survivors, many are doomed to become helpless cripples unless expert orthopedic supervision and treatment to prevent or correct deformities are furnished at public expense.

Sad examples of the lack of proper orthopedic treatment may be seen in cases brought to the State Hospital for Crippled and Deformed Children. There, through surgical operations and the use of special apparatus, such as braces, splints, casts, etc., supplemented by patient training of muscles, the little sufferer's deformed limbs are straightened, and their use restored as far as possible. But the medical profession knows that proper precautions during the second and successive months after the onset of paralysis will prevent most deformities. The patient should be let alone while tenderness persists. Massage and other such interference is then dangerous.

It is the duty of the medical profession to inform the people generally that deformities can be prevented and that the function of paralyzed limbs can be restored, in some degree, even in the most severe cases.

The State Board of Health is about to make a survey of all affected in the recent epidemic, and is assured of the most cordial co-operation of the orthopedic staff of the State Hospital for Crippled and Deformed Children in making a survey of all paralyzed sufferers of the present poliomyelitis epidemic in Minnesota. The purpose of this survey is to record the exact condition of each patient and to recommend treatment

for prevention of deformities and for restoration of function and re-education of paralyzed or weakened muscles.

Families able to pay for treatment will receive expert advice free of charge, but must seek their own medical and surgical assistance. Patients in families unable to bear the expense of the necessary treatment by a private physician will be taken care of in the State Hospital for Crippled and Deformed Children, in other institutions, or at home. It is sincerely hoped that sufficient funds will be available for this purpose; otherwise, private subscriptions will be sought to pay for braces, splints, and other needed orthopedic appliances and for massage treatment and muscle-training, by which the use of paralyzed parts may be restored.

Paralyzed cases in the Twin Cities will be examined first. This can be done at small expense, and the findings will furnish a basis for organizing the field work throughout the state and for estimating the needs of the sufferers. The Twin City survey may be finished before the meeting of the State Medical Association, when the situation will be outlined, and state-wide co-operation of the profession will be secured.

#### THE JOURNAL-LANCET AND MEDICAL JOURNAL ADVERTISEMENTS

A few years ago the medical profession came to a realization that it had been led into a grave situation in the matter of prescribing so-called proprietary medicines. Through a large degree of gullibility common to all professional men; through a lack of training in pharmacology, due to the absence in most medical schools of proper or, indeed, of any scientific teaching in this direction; and, in no small measure, because of the prevalence of drug iconoclasm, a great many physicians were wont to prescribe on one day what was "thrown over the transom" the day before, whether it was "a patent medicine," "a proprietary medicine," "a nostrum," or even "a 'secret' nostrum," provided it was "a new discovery," which of course every over-the-transom remedy proclaimed itself to be.

These transom remedies ran from A to Z,—from abican to zymotoid,—and were composed of anything and everything, from  $H_2O$  to  $C_2H_5OH$ . "Dr. Smith," "Prof. Jones," and "Mr." or, more likely, "Mrs. Brown" gave glowing, assuring, and abundant testimonials that such remedies had cured, over night or sooner, all "diseases that flesh is heir to," of which the testimonial-

givers had been the victims for too many years to mention. Were these testimonial-givers the little men of the medical profession or of lay society? Not a bit of it. Very often they were physicians of the highest standing, ministers, lawyers, artists, men of wealth, kings, and queens. Among them was many a "who is who," occupying a full page of pedigreed stuff in the volume of the great and the near-great men of America and Europe.

The really serious side of the situation was, that some of the remedies thus exploited and prescribed contained dangerous or habit-forming drugs, or did not contain, at least in the quantities claimed in their formulæ, the drugs upon which the physician prescribing them depended to restore his patient to health. Furthermore, the formulæ of most of such remedies were the favorite formulæ of well-known physicians or slight variations from the formulæ of the standard text-books. The promoters of these remedies were generally laymen, and they "promoted" with a vengeance quite characteristic of American business men of the period. Generally speaking, what each did not claim for his remedy was what he could not think of or hire some physician to think of for it. The advertising columns of practically all medical journals were open to these promoters; and largely through such advertising the *Journal of the American Medical Association* accumulated a surplus of hundreds of thousands of dollars for the Association.

As was inevitable, the reaction set in, and it set in with a vengeance. In 1905 the American Medical Association organized the "Council on Pharmacy and Chemistry," composed of men of high standing in their professions, in the main, of pharmacologists and chemists. The editor of the *Journal of the A. M. A.* was made chairman of the Council, and he naturally became the head and directing spirit of the propaganda for reform.

A body of rules was adopted by the Council for their guidance in dealing with the different and complicated problems before them, most of which rules are excellent, but some of which are exceedingly elastic and open to abuse. For instance, to prevent "indirect advertising" Rule 4 says that "no article will be admitted if the label, package, or circular accompanying the package contains the names of diseases in the treatment of which the article is said to be indicated." This means that no such article, with two or three

specified exceptions, will be admitted to the book "New and Nonofficial Remedies"; but we find in the book itself the very information the Council will not permit the manufacturer to give. This information is given under the sub-title "Actions and Uses" found with almost every article described. For instance, under "Anthrasol" is the following:

*"Actions and Uses.*— . . . It is stated to be useful in chronic or subacute skin diseases, various forms of eczema, especially for after-treatment, and for all pruriginous affections; in diseases of the hair, as a restorative and for the removal of dandruff."

It is worthy of note that the wholly unscientific "it is stated" or "it is said" is found on almost every page of the book. It occurs *three* times in the eight lines describing "The Actions and Uses" of Novocaine; and the reader may well ask what information the Council thus desires to impart in its official report on the remedies described for the benefit of the medical profession. As this book ("N. N. R.") is sold to both the public and the profession, it seems to us the Council is violating both Rules 3 and 4, concerning advertising to the public, "direct" and "indirect," respectively.

The latest edition of "New and Nonofficial Remedies" contains, estimating from its index, the names of over fourteen hundred remedies which the Council has examined, and accepted for publication in this work.

We have not in the past, nor do we now, criticise the Council beyond what is said herein. We have the highest respect for its judgment and absolute faith in the sincerity of its intentions; but we may well ask how far its findings have been accepted by the medical profession, or even by the members of the American Medical Association, whose creature it is and for whom it acts. In the absence of ascertained, or ascertainable, specific information upon this point, any estimate of the percentage of the profession who accept the findings of the Council, in whole or in part, would be hazardous; but one is fairly entitled to draw an inference upon the point from his personal experience and observation; moreover, not a few references to the subject are found in the columns of the *Journal of the A. M. A.*, and they reveal an astonishing indifference of the profession to such findings. For instance, it is said in the *Journal* of March 26, 1910, that "it is only occasionally that a physician voices his indignation as to these humbugs."

The editor of THE JOURNAL-LANCET does not know a single general practitioner who does not



use some of the tabooed remedies, and he does not believe that a score of practitioners can be found in the State of Minnesota who know the names of all the condemned remedies and who do not use some of them, even though knowing that such remedies are on the Council's blacklist. One such remedy is used extensively in the principal hospitals of Minneapolis, including the University Hospital; and it is the testimony of pharmacists that many of these remedies are very generally prescribed by medical men.

*What is the meaning of this?*

Primarily and unmistakably, that the findings of the Council are believed by medical men often to be biased, or that they sometimes are based upon mere technicalities. But, in our opinion, a greater reason for this lack of confidence has been the course of the Chairman of the Council in his capacity of editor of the *Journal of the A. M. A.* and, consequently, director of the "Propaganda for Reform in Proprietary Medicines." In his opinion, often expressed, all medical journals that adopt other standards for the acceptance of advertisements than that of the *Journal of the A. M. A.*, are mercenary, and every physician who supports, by subscription or contribution, such journals, does not possess "a particle of self-respect or manhood." (*Journal of the A. M. A.*, January 26, 1907, p. 340.) An examination of the current medical journals will show that such men as Dr. Howard A. Kelly, of Johns Hopkins, Dr. Charles H. Mayo, president-elect of the American Medical Association, not a few ex-presidents of the Association, and many men equally distinguished, fall under this condemnation; and, by fair inference, the entire membership of those State and County societies that publish such journals—and there are a number of them—are included in this gentle characterization.

Of course, THE JOURNAL-LANCET is classed among these journals, and its "supporters" among the men without self-respect or manhood.

THE JOURNAL-LANCET is often further degraded by being styled "a privately owned journal." Ostensibly because of this double handicap, the *Journal of the A. M. A.* recently singled it out for a vicious attack; its concealed motive, however, is well known in this office.

The half-truth, that THE JOURNAL-LANCET is "a privately owned paper, implies that its advertising, if not its editorial, policy is determined by its private owners, and, quite naturally, to the harm or the discredit of the medical profession.

This belief and fear may possibly be shared by some members of the State Associations it represents; and we therefore propose to set forth indisputable facts to show there is no ground for either the belief or the fear.

THE JOURNAL-LANCET has practically, and, most of the time has actually, been the official organ of the Minnesota State Medical Association for a third of a century. In 1905, the Association asked each of the two Minnesota medical papers to name terms upon which it would become the journal of the Association. The *St. Paul Medical Journal* offered the Association a department of its paper for the publication of its transactions; *The Northwestern Lancet*, as THE JOURNAL-LANCET was then called, offered the Association absolute control of the paper, of both its editorial and advertising columns,—a control such as absolute ownership or an unqualified lease would give. The financial consideration (one dollar a year as the subscription for each member of the Association) was the same with the two papers.

The offer of this paper was accepted, and a contract was entered into, which contract has been twice renewed, and expires next year. The Publication Committee, the editor, and the publisher met for consultation. The policy of the paper was freely discussed; and there was not the slightest difference of opinion upon any point. No change was made in the editorship of the paper, but certain advertising contracts were considered as undesirable for renewal. After this meeting, the publisher, prompted by what seemed to be the interest of the Association, suggested that at some other advertisements should be dropped, and the contracts for the same were not renewed. The policy of the Committee, as we interpreted it, was to accept the advertisements of remedies which contained no harmful ingredients, which could not form drug habits, for which grossly extravagant claims were not made, and which were known to be largely used by reputable physicians. The policy has been carried out, in the main, by the editor, but members of the Publication Committee have frequently been consulted. Many advertisements have been refused, and others concerning which just complaints were made have been dropped. In not one instance has the publisher entered an objection; and in most instances the complaints upon which advertisements were dropped were brought to the editor's attention by the publisher. In absolutely no instance has



the publisher attempted to dictate the editorial policy of the paper, and if there is fault to be found with the paper's policy the editor cheerfully assumes the responsibility.

After an experience of more than a decade with this standard we believe no better can be adopted, especially as it is, we think, unmistakably the standard of almost the entire membership of the profession. With our two thousand "proprietary articles" on the market, some of which are prescribed universally, though some of which are worthless, fraudulent, or dangerous, a standard of selection is indispensable; but no standard is infallible, and to call a man hard names because he does not accept a certain standard is unbecoming in any profession.

Whatever standard be accepted, the Council on Pharmacy and Chemistry is needed to compel manufacturers to give the profession what they claim to give them; and every reputable manufacturer, regardless of his course in the past, should welcome such a check upon himself and his competitors. With such a standard the findings of the Council would command *universal* respect among both physicians and medical journals. An illustration will serve to show how the present policy of the Council (perhaps we should say of the Propaganda for Reform) cannot possibly command such respect. For the past eleven years proprietary remedies containing hypophosphites have been admitted to the Council's book ("N. N. R."), and to the columns of the *Jour. of the A. M. A.*, thus stamping them as *ethical*, if we know the meaning of language. In the *Jour. of the A. M. A.*, issue of Sept. 2, 1916, p. 760, appears the following statement:

Although the overwhelming weight of evidence was against the probability that the hypophosphite preparations are of value as therapeutic agents, the Council thought it well to investigate the subject.

How long the Council and the *Jour. of the A. M. A.* have been in possession of this *overwhelming* weight of evidence, we do not know, but we do know that now to pronounce these remedies useless and unethical, and drop them from the advertising columns of the *Jour. of the A. M. A.* and from the "N. N. R." will not induce many medical men who have been using them for years to drop them.

As it is becoming increasingly difficult to produce a medical journal without a large advertising patronage, it is due to the publisher of THE JOURNAL-LANCET that unreasonable restrictions should not be placed upon him while he is at-

tempting to give the profession of the Northwest a paper that will not only be a credit to it, but will bring no discredit upon it. Surely, if men of the highest standing in the profession continue to use certain remedies, their advertising in the columns of the medical journal supported by the profession should not be prohibited.

THE JOURNAL-LANCET, with the exception of such state journals as accept the standard of the *Jour. of the A. M. A.*, is the freest of all medical journals from advertisements to which objection can be taken; moreover, it is not opposed to dropping two or three of the advertisements in its columns which have been criticized.

The editor freely acknowledged his own obligations for the helpfulness of the publisher in many ways, and he believes that the medical profession of the Northwest will never know how faithfully, how unselfishly, and how efficiently Mr. Klein has served it for the past twenty-five years. He has spent money freely to make the paper typographically the handsomest medical journal in the country. Practically no limitation has been put upon the number of illustrations used in articles, though the plates so required have been of the finest quality, and have cost very considerable amounts. He has brought to the service of the paper a very unusual talent in the editing of manuscript, and has paid for what is probably the best expert medical proof-reading obtainable in the Northwest; and, in no small degree, because of this work THE JOURNAL-LANCET has been generally recognized without a peer, at least among the minor medical journals, and is far superior in this respect to not a few of the leading journals. The contributors to our columns, both those in the East and those in the West, have been uniformly generous of their praise for such work upon their manuscripts. And, possibly above and beyond this, the business management of the paper has been such as to give to the men who contribute articles to it an audience obtainable in no other way. With very few exceptions, the men who determine the character of the medical profession in the Northwest, who make its literature, particularly in the states of which the Twin Cities are the natural and recognized medical center, have long been subscribers and contributors to the journal, and they know that it is, and will long remain, the profession's best representative. Such men will remain its contributors and its subscribers, and, for purely professional, if not

for personal considerations, will publish their best papers in its columns.

A further word as to the meaning and significance of a "privately owned journal," the editor believes will not be out of place, particularly as some men seem, quite naturally, to read "privately controlled" into the term. The Lancet Publishing Company, a corporation, owns the paper; and the stock of the Company is held, and has been held since its incorporation, exclusively by members of Mr. Klein's family, and by a few Minneapolis physicians. *No one else ever held a share of the stock, and any statement made to the contrary is wholly false.* Moreover, the medical stock-holders are paid, and always have been paid, only a moderate interest on their investments, and have no other share in the profits of the paper. They put money into the paper in time of need, and did so solely in the interest of the medical profession. They feel that they acted wisely, and they have been amply rewarded for any risk they assumed by the success of the journal.

#### A WORD OF WARNING

A few men would undo the work that has been done, and would do so for purely selfish reasons. In our opinion they should not be permitted to do this without the full and intelligent approval of a majority of the medical profession of Minnesota.

## BOOK NOTICES

INTERNATIONAL CLINICS, vol. i, twenty-sixth series. 1916 Philadelphia: J. B. Lippincott Company.

In every volume of the International Clinics there is always something of interest to the reader, whatever his taste may be, and this number is no exception.

The subject matter is classified under the following headings: treatment, medicine, neurology, public health, pathology, gynecology, and surgery. Among the many instructive and practical articles may be mentioned "The Early Diagnosis of Gastric Cancer," by Friedewald, which is a report of 1,000 cases; and "Spina Bifida and the Surgical Treatment of Its More Serious Forms," by W. Wayne Babcock; "A General Review of Medicine for the Year 1915," by Craig and Speese, which, without being exhaustive, is well written.

As usual, the volume is profusely illustrated and subjects carefully indexed.

—GARDNER.

## NEWS ITEMS

Dr. M. A. Desmond, of Akeley, has moved to Eveleth.

Dr. C. A. Kerner, of Upham, N. D., has moved to Hazen, N. D.

Dr. A. A. Meyer, formerly of Courtney, N. D., has located in Osakis.

The Warren Hospital graduated a class of nine nurses September 15.

Dr. A. W. Hanson, of Dawson, is spending the winter in Silverton, Oregon.

Dr. A. E. Sohmer, of Mankato, is spending several weeks in the eastern clinics.

Dr. F. N. Bjerken, a graduate of Rush Medical College, has located in Lake City.

The sum of \$51,000 has been subscribed for the new Methodist Hospital of Mitchell, S. D.

Dr. Frank C. Todd has returned to Minneapolis from an outing in the Rocky Mountains.

The Red Wing Hospital Training-School for Nurses graduated a class of five on September 23.

Miss Georgia H. Riley, of Worcester, Mass., is now superintendent of the Montevideo Hospital.

Because of an epidemic of scarlet fever the schools of Goodridge have been closed indefinitely.

Dr. Nils Myklestad, of Minot, N. D., has returned from a four months' visit to the German clinics.

Dr. E. A. Warner, of Waverly, has accepted a position with the Tri-City Sanitarium at Moline, Ill.

Dr. L. G. Smith, of Montevideo, was married on August 30 to Miss Edith Lumley, of Ellsworth, Wis.

Dr. C. A. Traeger, of Faribault, was married on September 21 to Miss Rith Hertzler, of Burlington, Iowa.

Dr. W. H. Darling, of Minneapolis, is in France with the Harvard unit of the British hospital force.

Dr. Carl F. Raver, of St. Paul, has been placed in charge of the State Board of Health's laboratory in Mankato.

Dr. C. A. Reed, of Minneapolis, was married to Mrs. Jane C. Dickey, also of Minneapolis, on September 13.

Dr. H. R. Leidinger, of Buffalo, N. Y., has joined the staff of Drs. Roan, Fisher, and Strauss, of Bismarck, N. D.

Dr. Sverre Oftedahl, of Fargo, N. D., was married on September 13 to Miss Agnes Halland, of Macintosh.

Dr. H. B. Clark, a graduate of the Medical Department of the University of Minnesota, is to locate in Clear Lake.

Dr. G. J. Marquette, of Deer Lodge, Mont., was married on September 6 to Miss Mona Beaumont, also of Deer Lodge.

Duluth still maintains its record of only one case of infantile paralysis for the year. "Can you beat it?" or explain it?

Dr. J. F. Corbett, of the University, has returned from the Mexican front, where he was called as a reserve surgeon.

The Clay-Becker Sanatorium at Sand Lake has been formally accepted from the contractor, and will be opened at once.

Dr. J. R. Cannon, Assistant Physician at the State Sanatorium at Walker, died very suddenly of heart disease on September 5.

Dr. H. F. Schrader, of Hobson, Mont., is doing postgraduate work in the East. Dr. H. P. Brown, a graduate of Rush Medical College, is taking his place.

A visiting nurse for the rural schools of St. Louis County has been appointed, and she began work in the consolidated schools of the county on April 1.

Dr. T. F. Riggs, head surgeon of St. Mary's Hospital, of Pierre, S. D., was married to Miss Catherine Cugle, of Baltimore, on the first of September.

The necessary arrangements for the new hospital at Fertile are rapidly being completed. Drs. J. N. Risjard and O. E. Bratrud will comprise the local staff.

Work was begun last week on two new wings to St. Mary's Hospital of Minneapolis. The improvement will cost \$400,000, and will require a year for its completion.

Dr. R. J. Sewall, of Crosby, has returned to the border after a two weeks' furlough. Dr. Sewall is First Lieutenant of the Medical Corps of the First Minnesota Infantry.

Dr. Eugene Hubbell, of St. Paul, was elected president of the American Association of Official Surgeons at their twenty-ninth annual meeting held in Chicago September 15.

Dr. Rowland Gilmore, of Bemidji, was operated upon in a Baltimore hospital the first of September. An injury to the knee made necessary the amputation of his left leg.

The tenth annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association will be held on December 12 and 13 at the Hotel Radisson, Minneapolis.

Dr. A. C. Tanner, formerly of McGregor, has located in Minneapolis, after spending over a year in the Sloan Hospital for Women and the Lying-in-Hospital in New York City.

Dr. Emil Haberman, of Minneapolis, has purchased the practice of Dr. W. H. Hengstler, of Osakis. The latter will move to Oregon after completing a postgraduate course in New York City.

At the annual meeting of the Hennepin County Registered Nurses' Association held September 18, Miss Hannah F. Swenson was elected president and Miss Lena B. Stewart vice-president.

Drs. O. C. Maercklein and Samuel Chernausek, of Dickinson, N. D., have dissolved partnership. Dr. Chernausek will remain in Dickinson, and Dr. Maercklein will take postgraduate work in the East.

The program of the Sanitary Conference, called by the State Board of Health, to meet in Minneapolis on the 11th instant, is given on another page with the program of the State Medical Association.

Dr. S. A. Nesse, of Enderlin, N. D., has taken over the practice of Dr. A. J. Ostrander, of Nome, N. D. Dr. Ostrander will move to Enderlin. Dr. Nesse was married to Miss Johanna Gjesvold, of Nome, on September 6.

Dr. Arthur W. Hoagland, of Minneapolis, has been appointed an assistant surgeon in the U. S. Navy. Dr. Hoagland is a graduate of the University of Illinois, and has been a house physician in the City Hospital for the past year.

The new contagious ward of the Minneapolis City Hospital was formally opened to the public on September 14. Among the features which attract attention are glass walls, which permit the nurses' watching the patients without entering the rooms.

The governor of Minnesota has appointed a Public Health Commission of nine members to investigate and report on the need of additional safeguards for the citizens of the state. Dean



Lyon, of the Medical School of the University, was made chairman of the commission.

The orations in medicine and surgery, delivered by distinguished guests, will be given at the banquet of the State Medical Association on the 12th inst. The former oration will be given by Dr. Walter B. Cannon, of the Harvard Medical School, and the latter by Dr. L. L. McArthur, of Chicago.

The women of the Hennepin County Auxiliary will entertain the wives of the visiting doctors of the state at the annual meeting of the State Medical Association to be held in Minneapolis October 10, 11, and 12. The entertainment will be in the form of a luncheon, with the afternoon at the Art Museum. Tickets may be obtained from the committee at the women's headquarters at the Radisson Hotel, October 10.

Dr. L. D. Bristol, a graduate of Johns Hopkins, formerly on the medical faculties of Minnesota and Syracuse Universities, and for the past two years Professor of Bacteriology and Hygiene, and Director of the State Public Health Laboratories at the University of North Dakota, has accepted the newly created Boston Dispensary Fellowship in Public Health in the Department of Preventive Medicine at Harvard Medical School, Boston.

#### PART OF MINNEAPOLIS OFFICE FOR RENT

I want a doctor to share my office in a suite of rooms in a modern office building in Minneapolis. Address 403, care of this office.

#### AN EXCELLENT OPENING FOR A DOCTOR

A doctor is wanted in a growing village in West Central Minnesota, where crop failures are unknown. For further information, address 404, care of this office.

#### PRACTICE FOR SALE

I offer for sale my \$4,000 practice in a city of 1,100 in eastern North Dakota; good large territory. Will sacrifice for quick sale. Address 399, care of this office.

#### PARTNER WANTED

A physician to buy half interest in a country practice in a small town. Must be Protestant, and a German or an American. For information, address 396, care of this office.

#### PRACTICE FOR SALE

I wish to sell my practice in a Central Minnesota town of 2,400. House, lot, car, garage, etc., optional. This is a German community, well settled, with a well-equipped hospital, and collections of 100 per cent. I have had my practice for over thirty years, but must go west because of illness in my family. Address 407, care of this office.

#### PHYSICIAN WANTED

Fine location; big territory; thriving town of 400 in Red River Valley in Minnesota. Address 401, care of this office.

#### ASSISTANT WANTED

I wish an assistant in my practice in a good mining town. Will pay \$125 per month for the first six months, and \$150 after that. Give age, experience, and references. Address 406, care of this office.

#### POSITION WANTED

Wanted, position as office assistant in a physician's or dentist's office by a refined, neat and experienced young woman; am capable, systematic and orderly. References exchanged, state hours and salary. Address 410, care of this office.

#### SURGEON WANTED

A surgeon is wanted at a good salary to do the operating in an established hospital in A No. 1 farming community in Minnesota. Must be competent to do laboratory work. Must speak a Scandinavian language, Swedish preferred. Address 405, care of this office.

#### PRACTICE WANTED

Wanted, a practice, partnership, or assistantship. I am a graduate of the Minnesota Medical School, with one year internship, one year Assistant Police Surgeon in Minneapolis, and a year and a half in general practice; not afraid to work; surgery preferred. Address 409, care of this office.

#### OFFICE SUITE TO RENT.

I wish to rent one of my suite of offices in the Masonic Temple, Minneapolis. These rooms are suitable for a physician or a dentist, and can be had very reasonably. This is a splendid opportunity for any one desiring to locate down town. Dr. E. Z. Wanous, 409 Masonic Temple, Minneapolis.

#### PRACTICE FOR SALE

A \$10,000 practice for sale at office invoice if taken at once. No real estate. Located in a live Central Minnesota town of 1,200. All modern improvements, two railroads; nationality, Scandinavian and German. Collections O.K. Am leaving to take up an unexcelled opportunity for special work. Address 408, care of this office.

#### FOR SALE

A desirable, attractive 10-room home, 1½ acres of land on Crystal Lake, Lake Minnetonka, with fine shore, large garage and barn, and auxiliary cottage, and gas and water plant. Finely located. A large and desirable medical practice goes with it. Only object of selling is poor health. A desirable place and location for the right man. Address 408, care of this office.

#### PRACTICE AND HOSPITAL FOR SALE IN NORTH DAKOTA

Completely equipped 10-bed hospital and office, including x-ray apparatus, with practice which ran \$9,000 this last year. Large territory; good collections; Methodist and Presbyterian churches; good high school; fine people. A fine opening for a good live young man who can do surgery. Reason for selling: I am going to specialize. Address 402, care of this office.

# Hard Dry Feces

are not only difficult to pass, but may give rise to (1) irritation and congestion of the rectum, which may influence fissures and hemorrhoids (2) by their physical pressure, they may affect prostatic and other genito-urinary conditions. These are in addition to (3) the effects of any autotoxemia that may arise.

**HARD DRY FECES** are often caused by over-extraction of fluid by the colon, or by lack of intestinal mucus, or both, but they are overcome by **INTEROL**, which not only lubricates them, but, being itself non-absorbable, it stays with them, and *keeps* them soft and mouldable so that they pass easily through constrictions.

With **INTEROL** well mixed in them, more **HARD DRY FECES** cannot form, but instead, **SOFT PLASTIC FECES**, so that the patient obtains evacuation without straining at stool, and life becomes worth living—so far, at least, as **INTEROL'S** combatting of obstipation-stasis-autotoxemia is concerned.

**INTEROL\*** is more than "ordinary mineral oil": (1) it possesses *effective lubricating body* so that it clings to the fecal mass—**INTEROL** has efficient "spread and mix" properties (2) no "lighter" hydrocarbons to disturb the kidneys (3) no sulphur compounds to disturb digestion (4) no odor or flavor, so that the patient *can* take it and derive its benefit.

\***INTEROL** booklet on request. Pint bottles, at druggists.

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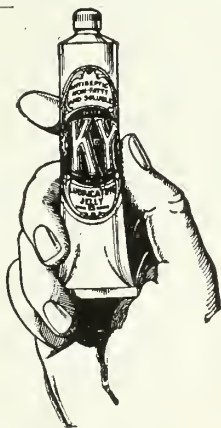
## Itches,

Irritations, chafings, etc., are exasperating, but—

### K-Y Lubricating Jelly

quickly cools, soothes, and relieves. "Keeps the hands away, and doesn't grease the linen."

Sig: Wash off previous application before applying more.  
Collapsible tubes, at druggists, 25c.



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### K-Y ANALGESIC

which does not relieve every pain, but which is

#### "A POWER FOR COMFORT"

in a surprisingly great number of painful conditions, principally headache, neuralgia, and "rheumatic pain."

Where the physician does not wish to use a narcotic or a hypodermic, **K-Y ANALGESIC**, locally applied, will often be found sufficiently effective,—

#### "A POWER FOR COMFORT"

Greaseless, water-soluble, convenient, economical.

*At druggists, collapsible tubes, 50c.  
Booklet and sample on request*

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15-17 East 40th Street, New York City

# Hydroleine



Made from pure cod-liver oil emulsified after a scientific formula by approved processes.

The need of many children for cod-liver oil has been met with marked success by Hydroleine. They take it willingly; they—as well as adults—like its distinctive nutty flavor. Hydroleine is also exceptionally digestible. While its scope of usefulness is widened by its palatability and digestibility, it is always notably dependable.

Sold by druggists.  
**THE CHARLES N. CRITTENTON CO.**  
 115 Fulton St., New York  
 Sample will be sent to physicians on request.

## HAY FEVER LOGICALLY TREATED

WITH

## SHERMAN'S BACTERINS

Pollen irritation favors the development of pyogenic bacteria in the respiratory tract which then become a primary factor of the disease. Experience shows that the immunizing influence of an appropriate bacterin will either cure the disease or so modify it that it causes but little distress

WRITE FOR LITERATURE  
**G. H. SHERMAN, M. D.**  
 DETROIT, MICHIGAN

## Mercurial (Gray) Oil

One of the New and Non-official remedies. Accepted by the Council on Pharmacy and Chemistry, American Medical Association. A valuable adjunct in the treatment of syphilis. Syringe containing 10 injections \$1.50. Credit of 50 cents on return of syringe. Send for pamphlet.

## Wassermann Test

### \$5.00

The classical test is made. The various modifications will be made upon request, without additional charge.

Sterile container with needle and complete instructions sent upon request, without charge.

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Slides of sections sent upon request.

## Autogenous Vaccines - \$5.00

Pyorrhea	Chronic Bronchitis
Asthma	Endocarditis
Sinus Infections	Otitis Media
Throat Infections	Skin Infections
Bladder and Urethral Infections	Hay Fever

The *exciting* organism is identified and isolated. Cultures are made both aerobically and anaerobically. The vaccine is furnished in a single half-ounce container or in ampules in graduated doses. Culture media, with sterile swab and directions for collection of specimens, sent upon request, without charge.

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## PUBLISHER'S DEPARTMENT

### MELLIN'S FOOD

was the first preparation of maltose and dextrins presented to physicians in serviceable form, and it stands today as a true representation of Liebig's principles, which are now so generally applied to scientific infant-feeding.

### THE MINNEAPOLIS SANITARIUM

Dr. R. M. Peters is the medical director of the Minneapolis Sanitarium, and this is a guarantee that the sanitarium is ably conducted and is entirely ethical.

This sanitarium gives special attention to alcoholic and drug addictions, and its prices are very moderate. All other acute and chronic, if non-contagious, medical and surgical cases are accepted.

Physicians may be assured that both they and their patients may have perfect confidence in this institution. For any information desired, address The Minneapolis Sanitarium, 1500 Elliot Avenue, Minneapolis.

### THE POTTENGER SANATORIUM

This ideally located institution gives its tuberculosis patrons the uplift that comes from a climate that is salubrious twelve months in the year, a scenery that is beautiful every day in the year, a management that is unsurpassed in the world, and a staff of men who are leaders in the whole world's battle against this dread disease, Dr. Pottenger having long been recognized, at home and abroad, as a leader among the scientific men who have long waged this battle.

Monrovia, the location of this sanatorium, is in the foothills of the mountains of California, and only forty-five minutes from Los Angeles.

### STILL ROCK SPA

The Still Rock Spa is a hundred-room hospital for the exclusive care and treatment of patients with diabetes and Bright's disease. It is located in the beautiful city of Waukesha, Wis., and draws its patients from all parts of the country.

Its management is in the hands of experts in these diseases, and the results obtained by care, diet, and medication have been most gratifying. A few weeks spent in such an institution so trains the patient in the care of himself that he becomes a new man, and in the vast majority of cases the patients are restored to a condition little short of normal health.

Full information concerning the work of the institution can be had by addressing Still Rock Spa, Waukesha, Wis.

### FARMERS AND MECHANICS SAVINGS BANK

The quarterly statements made by the above-named bank appear in our columns, and are well worth reading. The current statement gives the information that its interest rate is four per cent, compounded quar-

terly, its deposits are over *twenty* million dollars, its surplus is one million, and its depositors number over *seventy-six* thousand.

No higher trust can be placed in the hands of men than the care of savings of the magnitude of the above, and it demands both integrity and financial ability of the highest order. It is the universal testimony of the business men of Minneapolis that from the foundation of the bank to the present day it has been guided by such men; and as a result the whole city is proud of the Farmers & Mechanics Bank.

It offers the country depositors all the privileges of the city depositor.

### THE BEEBE LABORATORIES

It would be exceedingly interesting to know how many physicians in the Northwest fail to use the public laboratories now at their service in the absence of private laboratories. We confidently believe the percentage of men is smaller in the Northwest than in all other sections of the country. Failure to use, we might say constantly, a laboratory is a failure to practice medicine scientifically.

We want to suggest to such of our readers as do not frequently, or on all proper occasions, seek the help of the public laboratories, that they correspond with the Beebe Laboratories of St. Paul (161-163 W. Third St.), and let Dr. Beebe tell them what his laboratories can do for them.

Dr. Beebe's standing in the medical profession is of the highest, and he is ready to give information and advice to all who seek it; and this information and advice is worth seeking. It will pay doctor and patient.

### THE HYGEIA HOSPITAL, CHICAGO

Our attention has recently been called to the very high record of fixed results established by The Hygeia Hospital of Chicago in its treatment of drug addicts and alcoholics.

The method it employs is non-secret, having been given to the medical profession in various articles in the A. M. A. and other medical journals, and is recognized as scientific, for it genuinely destroys the craving without the use of hyoscine or scopolamine. There is no graduated withdrawal, either fast or slow, of the drug or liquors.

The high ethical standing of this institution, as well as the quality of work being done, merits the confidence and co-operation of every physician interested in the welfare of patients of this class who come under his observation.

### HALF A CENTURY'S PROGRESS

October, 1916, points an epoch in the history of Parke, Davis & Co. The house was founded in 1866—just fifty years ago this month—largely upon the optimism of three or four determined men, backed by a capital that would seem insignificant today. There was nothing in its unpretentious origin to foretell the success of after-years. And by success we mean not merely material prosperity, but also that broader and

more enduring success that is based upon good-will and confidence.

Manufacturing pharmacy was then a crude, imperfect art. Bacteriology, pharmacology and biological pharmacy were as yet unborn. There were no curative sera or vaccines in those days. Prophylaxis was in its infancy. Standardization was unknown.

Fifty years have wrought marvelous changes in means and methods for the treatment of human ills. The materia medica has been amplified beyond the dreams of the earlier investigators. Knowledge of pathology has immensely broadened. The empiricism of the past has given way to rational therapeutics, and medicine is taking its rightful place among the sciences.

In all these forward movements Parke, Davis & Co. have had some part—notably as discoverers of new vegetable drugs, as inventors of new chemical compounds, as pathfinders and producers in the field of biological manufacture, as investigators in original research, as pioneers in both chemical and physiological standardization.

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## FUNDAMENTAL PRINCIPLES UNDERLYING THE TREATMENT OF HEART DISEASE\*

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ST. PAUL

Of necessity the internist must chiefly concern himself with those chronic diseases which receive the least attention at the hands of the medical profession as a whole, whose chief interest is centered naturally in the more alluring field which comprises surgery and the care and management of acute ailments. As a result, the astonishing possibilities of accurate diagnosis, prognosis, and treatment in relation to certain of the conditions whose possessors and clinical predecessors have for all time constituted the derelicts upon the ocean of life, are neither generally understood nor appreciated by the great body of practitioners and, as yet, remain untaught by schools or text-books. Indeed, the present general attitude of the average medical man, no less than the layman, toward cardiovascular disease is strikingly like that held in relation to pulmonary tuberculosis fifty years ago, and the apathy and hopelessness so often exhibited in relation to cardiovascular diseases sometimes remind one of that of the people of Europe during the middle ages, who had come to accept with resignation the visitations of the "black death" as an evidence of the wrath of God, inevitable and unescapable. It is certainly true that, to the great majority of physicians, heart disease is something to be dealt with only when nature unassisted has reached very nearly the limit of her truly remarkable possibilities. That this viewpoint is radically wrong and that it con-

stitutes the cause of an infinite amount of unnecessary suffering and deprives the unfortunate victims of heart disease of an untold total of years of useful life, is the firm conviction of your essayist. With respect to retardation, amelioration, and extension of the term of life, in his experience, cardiovascular derangements have proven among the most responsive and satisfying of all chronic ailments, even taking into consideration the essential incurability of the severer organic types and the patent impropriety of a meddlesome therapeutic interference with fully compensated lesions.

The basic principles underlying the modern treatment of cardiovascular disease comprise in fact the following: (a) *prevention*; (b) *early recognition*; (c) *comprehensive, discriminating, and individualized diagnosis and prognosis*; (d) *absolute control*; (e) *adequate opportunity for observation*; and (f) *an abundance of time for the actual treatment of individual cases*.

a. *Let us consider first the question of prophylaxis.*—The enormous advance recently made in our knowledge of the etiology of valvular and degenerative diseases of the heart, through our better understanding of the extraordinary frequency and potency of chronic septic foci and the great part played by syphilis in certain of the degenerative diseases of the middle decades of life, has placed in our hands means of prevention of the utmost value and importance.

The great majority of the cases of endocarditis and pericarditis originate in attacks of acute

\*Read at the 29th annual meeting of the North Dakota State Medical Association at Devils Lake, May 10 and 11, 1916.



rheumatic arthritis, long suspected of an infectious origin, and now quite definitely proven to be the result of the action of the "*micrococcus rheumaticus*" of Poynton. We also know that this causative agent represents, in all probability, a transmutation form of the ordinary hemolytic streptococcus and that it finds every requirement for growth, development, and reproduction in the human tonsils and to a less degree in other chronically diseased tissues.

The prophylaxis of the juvenile type of heart disease, which includes the greater number of cases of primary valvular and pericardial infection, has become therefore, to a large degree, the prevention of acute rheumatism and, to a lesser but considerable extent, the proper management of developed rheumatic cases. The knowledge of the importance of the tonsils and other infective foci is now so widespread as to justify the hope that it alone will produce great results in the near future.

One may speak with much the same confidence in relation to the diagnosis and management of acute rheumatic arthritis itself, and that of other prostrating infections which, to a greater or less degree, constitute factors in the production of heart disease. At present, in young children especially, the diagnosis of an existing acute rheumatic infection is often wholly missed by reason of the fact that the joint-symptoms may be only those represented by the "growing pains" of childhood or by a slight local tenderness or redness, more likely to be detected by the mother than by the physician, and too often overlooked by all parties. A chief factor in the diagnosis in such cases is the reported earlier occurrence of a sore throat or an actual tonsillitis.

*Acute rheumatism in its development is a slow sepsis, following the almost invariable antecedent attack of tonsillitis or the recrudescence of some other potent focus*, not immediately, but after a period varying from several days to two or even three weeks. This fact is now well established by the reported results of the careful observation of a large material. It follows that every physician should regard any attack of sore throat, or actual tonsillitis especially, as a possible forerunner of actual rheumatism, and, in the case of little children especially, should warn the parents with respect to the possible development of obscure joint symptoms. No doubt we shall reach a point where the prompt removal of the tonsils will follow practically every attack of tonsillitis, but medical opinion has not yet quite reached

this radical viewpoint, though the value of complete enucleation is becoming better realized every year.

Every attack of acute rheumatism carries with it a genuine and great danger of endocarditis, myocarditis, or pericarditis as a complication, this being especially true in the case of children, who in public services show involvement of the heart to a recognizable degree in over sixty per cent of acute rheumatic infections. In the adult the danger is somewhat less, but in no case does the myocardium wholly escape involvement during the attack. This damage may, of course, be slight, and, in our present state of knowledge, we may be justified still in believing it to be in many cases transient.

There can be no doubt, however, that the vital question as to whether it shall prove trivial and transitory or serious and permanent, is frequently determined by the good or bad management of the case on the part of the attending physician and the presence or absence of intelligent co-operation on the part of the patient. However good his intention and however wise his instruction, the doctor cannot always secure the conditions which make for relative safety, whether in acute rheumatism or in other prostrating infections, but, so far as he can control the patient, he is in duty bound to lay down such rules as will reduce to a minimum the dangers of permanent damage to the heart. Your essayist has seen case after case of endocarditis result from an attack of rheumatism so slight and so limited that the patient was permitted to go about his daily work and activities. In children on several occasions even a fatal pancarditis has come on with no obtrusive premonitory joint symptoms, but invariably with an elicitable and suggestive history of recent sore throat. He has seen, in a host of instances of the usual premature resumption of activity after severe acute rheumatism in adults, followed by late incurable cardiac involvement, relapse, and added impairment, or even a rapidly fatal issue. It is absolutely necessary that in all acute diseases associated with profound physical prostration, the resumption of physical activity should be extremely deliberate, carefully graduated, and attended by the most scrupulous attention to the condition of the heart, for this very prostration is doubtless due in large measure to myocardial toxemia. As supporting this assertion your essayist would ask his *confreres* to recall to mind the extraordinary exhibition of physical weak-

ness, subjective and actual, which so abruptly appears when the myocardium becomes frankly and grossly involved during any acute infection. In his opinion, the weakness of a patient and his sense of exhaustion alike, whether attending effort or purely subjective, constitutes the best guide in the management of his convalescence after any prostrating acute infection. There is always danger in the pushing of such cases or in letting them push themselves. On many previous occasions your essayist has stated his belief, which he now reiterates, that the weakness or sense of exhaustion and incapacity for effort associated with profound acute toxemias in general represents, to a large degree, myocardial impairment, whether this prove apparently wholly temporary, as is usually the case, or become in some degree permanent.

To understand how many factors unite to endanger the functional integrity of this marvelous tissue one has only to remember that the myocardium is merely an aggregation of naked muscle fibers fully exposed to circulating toxins, that the intrinsic circulation of the heart is ten times greater than that of a corresponding bulk of skeletal muscle, and that, while every other muscle in the body may rest during a toxemic crisis, the heart must be actually overactive. One need only test the skeletal muscle strength *per se* in certain prostrating infections, which may have been present but a few days or even hours, noting the ability of the patient to carry out simple localized muscular effort in isolated muscle groups (such exertion as may be represented by the mere hand-grasp), and compare the results with those of tests which involve a definite demand upon cardiac reserve, to realize that both output of effort and inward consciousness of physical power are to be reckoned very largely in myocardial terms.

It is necessary, not only that, during the actual illness and throughout a carefully supervised and intelligently extended convalescence, the patient should be watched and rigidly controlled, but also that, following acute rheumatism especially, he should report for examination at stated periods for several months thereafter, inasmuch as certain forms of involvement (chief of which is mitral stenosis) do not become manifest during the illness itself, and oftentimes not for a considerable period after the termination of convalescence. This fact accounts for many of the humiliating instances of apparent oversight, such as are quite commonly encountered at the pres-

ent time. In this connection it may be said that, with respect to the myocardium, one of the most dangerous of all ailments and second only to rheumatism, is true influenza, a fact insufficiently appreciated at the present time.

With respect to syphilis: We have derived great enlightenment recently, not alone from the available modern specific tests, but also from many excellent and extended investigations of clinical and autopsy material. To an astonishing degree syphilis is shown now to be the causative factor in a large proportion of the degenerative diseases affecting the aorta and aortic valves and, to a less degree, the myocardium itself, when this condition originates after the age of thirty. The frequency with which an early infection of the myocardium or endocardium occurs in this disease has been emphasized, and it would appear that with the extension and more general application of accurate early diagnosis and effective long-continued treatment, we may hope for a diminished frequency of occurrence in the future. An interesting sidelight has been thrown upon syphilis in the course of recent investigations, which show the extreme frequency with which the acquirement of that ailment is denied; and, more than ever, it has become evident that the patient's statements with regard to this matter cannot be taken safely, whatever his age, sex, reputation, or social standing.

*One may also add that unless a Wassermann test is made by an expert serologist, its results are no more reliable than the assertions of a luetic suspect.*

Even more important than the luetic group, with respect to cases encountered in middle-aged individuals, are the silent or relatively silent dilations arising in a great number of instances from sheer physical overstrain, but oftener due to a slowly progressive degenerative change fed by the recurring activity of cryptogenetic septic foci, the bad effects of which are intensified and accelerated by periods of unrecognized myocardial inadequacy.

Too often such victims are relieved only through the conservative action of nature herself in the form of a greater or less degree of forced inhibition of activity, a sort of automatic brake, which serves for long periods as a most imperfect means of securing relative cardiovascular readaptation at the cost of an unnecessarily great diminution of the field of cardiac response and acceleration of morbid degenerative processes.

b and c. *Early recognition, comprehensive,*



*discriminating, and individualized diagnosis and prognosis.*—The limits of this paper forbid any exhaustive discussion of the early diagnosis of cardiovascular disease, but do not forbid the placing of the utmost emphasis upon the statement that this has become possible to a degree which as yet is but slightly appreciated by the members of our profession. In the near future, medical men generally will recognize that as in tuberculosis so also in heart disease, the necessity for early diagnosis is paramount, and this is indissolubly linked with highly individualized prognosis, adequate supervision, and timely and conservative treatment. Fortunately, the chief factors making possible the early recognition of the silent myocardial degenerations and the lesser but important insufficiencies and dilatation of the heart are, not the fascinating but generally unavailable and unpractical instruments of precision, which have so greatly aided certain forms of research, but, in large degree, the better understanding of actual clinical facts and methods of the simpler sort, and may be stated as follows:

1. *A growing recognition of the value of subjective symptoms and a more accurate knowledge of the many and variable manifestations of cardiovascular impairment properly falling under that head. The medical profession owes James Mackenzie a debt of gratitude for the emphasis which he has placed upon this cardinal element in early diagnosis. The more one studies the subjective expressions of cardiac inadequacy the more illuminating and helpful they become.*

2. *The recently acquired exact knowledge of maximal diameters of the cardiac profile permissible for the normal heart, and the emphasis which has it given to the fact that mere "rule of thumb" cannot take the place of a consideration of the structural peculiarities of the individual in determining the normal or abnormal size of the heart, have enormously extended the possibilities of the early recognition of correctible insufficiencies. It has also served to eliminate for all time the use of the classical landmarks, such as the nipple, on the basis of which, formerly, the normal size of a given heart was affirmed. It will remain a matter of wonder to future generations that we should ever have employed the variable and shifting mammillary and parasternal lines as if they were fixed and immovable landmarks. The net results of the fixing of maximal limits by means of the orthodiagraph have been the establishment of the astonishing and illuminating fact that, with extremely rare*

exceptions, the human heart profile, even in robust athletic subjects, seldom exceeds 13.5 or 14 cm. in total transverse diameter, if it be wholly normal.

In connection with this fact your essayist has during several years endeavored to emphasize the extreme importance of the ptotic "drop heart" in relation to minor dilatation and insufficiency. Briefly, it may be said that the drop heart is remarkably narrow, extremely mobile, pulsates like an elastic bag as seen with the fluoroscope, and, unlike the normal heart, forms its right border with its right ventricle. It is extremely dilatable, extraordinarily displaceable, strikingly productive of symptoms, largely of the subjective sort, seldom undergoes hypertrophy, and, to a large degree, escapes for very long periods some of the more serious valvular lesions. On the other hand, according to your essayist's experience, it is peculiarly susceptible to myocardial toxemias, though their effects are usually transient, and, in its more marked forms, is invariably found in association with general visceroptosis of varying degrees. The total transverse diameter of the undilated drop heart will seldom exceed 10 or 11 cm., and need not be greater than 7.5 or 8 cm., as may be seen from the radiographic plates shown, which are merely a few out of many such, for the "hanging heart," "Wanderherz" or *cor pendulum*, is one of the commonest of conditions.

The inferences to be drawn are obvious. From the birth of medicine to the present time enlargements of the heart have been overlooked and disregarded because of faulty normal standards, and this statement is especially true with respect to drop heart because of the fact that its transverse diameter might, in some instances, be increased 60 per cent and still fall within the limits of normal transverse measurements, as we now know them, or 100 per cent if reckoned upon the basis of our former "hit or miss" estimation of cardiac dimensions.

3. *The effect of physical rest and adequate test doses of active preparations of digitalis upon the cardiac outline, and especially upon any symptoms, subjective or objective, which may be present in a given case, is a simple device of cardinal importance.*

Your essayist is certain that any of his confreres who might choose to experiment with the effect of full doses of digitalis upon the general run of patients coming to their offices with obscure ailments would be astounded to find how



considerable a number might experience favorable effects, yet it is an established fact that, save in the presence of cardiac insufficiency, of some degree, digitalis in therapeutic doses is practically impotent.

4. *A different method of approach, a higher standard of requirement with respect to examination of the heart, and the determination of heart sounds.*

Many matters might be discussed in this connection if time permitted, but, briefly stated, accurate diagnosis is indispensable to intelligent prognosis, and both must be of the broadest possible type with respect to weighing of the many important factors which bear upon general management and direct treatment alike. *In no other condition is it more necessary to individualize cases.* One is dealing ordinarily with the largest questions of life, for it is his function to assist the patient through many years of existence and secure for him the maximum of comfort and of life expectation by means of a minimum of interference and direct therapy. Age, sex, habits, occupation, environment, family history, and temperament, social or financial status, and many other factors must be taken into consideration. With respect to actual diagnosis it becomes of the utmost importance to distinguish the type of the disease, its seat, and the degree of involvement.

d. *Necessity for absolute control.*

e. *Adequate opportunity for observation.*

f. *Abundance of time for the actual treatment of the individual cases.*

These three topics may be discussed as one. With respect to control: It is evident that this can only be achieved in full measure in the case of individuals of intelligence who are capable of understanding the aim and purpose of the physician and something of the results which he expects to achieve. A large proportion of the total cardiopaths living at any time, escape diagnosis and treatment alike until the inevitable breakdown and, too often, only when this has reached its terminal stage. This fact is attested, not only by the ordinary clinical experience, but by the autopsy records of some of the host of unsuspected cardiopaths who, each year, die suddenly under the worse than dubious diagnosis of "acute indigestion" and "acute dilatation of the stomach," the frequency of which emphasizes the extraordinary degree to which distress or actual pain of myocardial origin is referred to the epigastrium.

On the other hand, the man with heart disease whose lesion is known and who is willing slightly or radically to modify his activities as occasion demands, submits himself at regularly stated periods, which for many years may usually be represented by long intervals, and who will carry out to the letter, when emergency demands it, the instructions of his physician, may often extend his life by decades, and reduce his total of discomfort and disability to the minimum. On the other hand, the fool must often be left to his folly, and in no field is this truer than in cardiovascular derangements. The entire question of control is bound up with the last main topic, namely, the time which is allotted for treatment. It will not be denied that the average management of heart disease as generally conducted is radically inefficient, and that we have long been accustomed to belated, half-hearted, and relatively trifling methods of treatment, such as, in some instances, are competent to bridge certain periods of threatened disaster, but are usually insufficient to do more than produce a slight margin of cardiac reserve, which is constantly encroached upon and rapidly re-exhausted. Every case must be judged upon its individual merits as to the demands which adequate treatment must make upon the time of the patient, but neither the physician nor the patient should be satisfied with an attempt to bring about in a few days reorganization and rehabilitation in a heart which has been undergoing periods of recurrent minor dilatation for years. One is astonished to see how long good results in efficient treatment may be maintained under careful management for months and even years after what may appear to be a complete breakdown, of the type which our text-books describe as the final collapse of the patient's efficiency and the herald of early dissolution.

The prognosis will of course continue to be vitally affected by the nature and site of the disease process and the varying but well-understood comparative effects of the various groups of multiple lesions, no less than by the many other factors which relate alike to individualized diagnosis and prognosis. Of cardinal importance is the nature and degree of response shown by the individual heart under tentative therapeutic measures, and hardly less so is the constitutional type of the patient. One need not point out to the experienced physician the enormous variations with respect to response that exist in the various types of valvular lesions. A simple

endocarditic mitral regurgitation, for example, apparently in a stage of terminal decompensation, may prove peculiarly amenable to treatment as compared to the same condition due to primary myocardial degeneration or an aortic regurgitation showing an equally advanced decompensatory phase. Add to endocarditic mitral regurgitation a stenosis of the same valve, and your prognosis is considerably damaged; yet one may meet with mitral stenosis of a particular type, occurring in the asthenic individual, which may show an astounding capacity for repeated rehabilitation under adverse conditions and reveal no past rheumatic or other acute sepsis to account for its presence. It would be absurd to assume, nevertheless, that a case of major decompensation or a dilated drop heart in an asthenic emaciated individual could be given long-enduring relief under any conditions which did not include more or less absolute isolation of the patient, prolonged rest, and extremely slow, definitely graduated resumption of physical activity. We who deal with such cases find ourselves constantly handicapped by the lack of lay understanding and that of the general profession itself with relation to this subject and the consequent assumption that permanent relief may be expected after some brief and wholly insufficient period of treatment. A case of badly dilated, flabby, labile, insufficient drop heart may, and usually does, prove wholly incapable of lasting improvement until the nutrition deficit so characteristic of the congenitally asthenic case is corrected. In each of these instances the utmost exactitude in diagnosis obtainable must be reinforced by abundant time and full opportunity for treatment, if proper results are to be obtained, and it must be understood that satisfactory and enduring results demand that treatment shall not be postponed until terminal collapse is imminent.

In closing, your essayist ventures to point out some of the difficulties which obstruct the progress of effective therapy in the cardiovascular field. One of these is represented by imperfect methods of percussion. The old technic still in universal employment demands the use of flat-finger percussion, which is poorly adapted to the determination of the true left border of the heart and is almost wholly unavailing with relation to the demarcation of the right border. Furthermore, the attempt to follow cardiac dullness into the left axilla by this or any other

method, instead of making the percussion stroke always at right angles to the general body plane, gives a false outline in the case of any greatly enlarged heart. The truth of this statement is demonstrated easily by extending the measurement thus obtained straight outward to the left from the midsternal line, when it may be found to project beyond the left thoracic margin and into space for several centimeters. In other words, we have been defining not the cardiac profile alone, but that plus several centimeters of dulness due simply to the proximity of the lateral border of the heart to the thoracic wall.

Your essayist will not attempt to discuss the various modern methods of percussion, a description of which may be found in the later books dealing with this subject, but prefers personally his own method of orthopercussion which is illustrated in the diagram here shown.

Another factor vital in the consideration of cardiovascular disease is the simple but fundamental fact that, however important the detection and specific differentiation of valvular lesions may be, the vital matter is always the condition of the heart muscle itself,—whether its defects be due to a myocarditis, chronic degeneration, or a congenital myocardial asthenia.

Yet another relates to the mental attitude of the student or practitioner at the time of undertaking any examination of the heart. It is to be feared that, too often, this involves, primarily, the mere question of murmur or no murmur. The result is likely to be that in many instances a total failure to appreciate the most significant alterations in the quality and accentuation of heart-sounds, on the one hand, and to exalt the importance and specific significance of a cardiac *bruit*, upon the other. The fundamental purpose in any such undertaking is the establishment of the presence of normal heart-sounds, and if this be the habit of mind, the detection of any existing murmurs is rendered doubly certain.

It is possible that the great importance and peculiar value of the long-focus radiograph and of the characteristic variations in the cardiac profile which it reveals are not sufficiently appreciated. The information thus obtained is so great, with respect both to diagnosis and the effects of treatment, as to make its frequent use obligatory on the part of any one who owns or has ready access to an x-ray apparatus.

With respect to the effects of treatment, tenta-

tive or formal, one cannot avoid a few words as to the proper and improper use of digitalis, the king of drugs in this field, which, in pronounced cases, finds its greatest value when given the advantage of initial associated physical rest on the part of the patient. Not only are we able repeatedly to demonstrate grades of dilatation falling within the normal limits of the cardiac profile by means of the response of the outline to digitalis, but to yet greater degree and with almost as much illumination in obscure instances, is the effect produced by such simple and harmless measures upon the subjective symptoms of cardiovascular insufficiency.

Your essayist has but these few words of advice to offer: Use a standardized preparation of maximum reliability and potency, and drive the primary effect home by full doses carried only to the point of producing a definite physiological effect; then withdraw the drug for a few days, and repeat the process as often as may be necessary and over as long a period. Unless impelled by absolute necessity, do not place the remedy in the hands of a patient at a period when the results of adequate administration demand careful medical interpretation, for it is certain to be either over- or under-used with resulting disappointment to all concerned. The effect of very small long-continued doses, administered after the primary purpose is achieved, is sometimes surprising, but these also should receive some measure of supervision.

Finally, a word as to the general attitude of medical men towards especially serious or apparently hopeless cases of cardiovascular disease. A traditional attitude of hopelessness leads to the abandonment of many cases long before such a step is necessary, and involves the loss of many opportunities to win a victory in the face of what may seem certain defeat. Quite as striking, and no less disastrous, is the assumption that little can be done for the disease of the primary degenerative type which occur in elderly people. Many a fine old gentleman is permitted to drift along with steadily but almost imperceptibly failing faculties and strength when a little care and treatment at the proper time, and repeated as may be necessary, will greatly prolong his life, and for considerable periods retard the sequelæ of the senile degenerative processes.

Your essayist does not wish to be understood as asserting that organic heart disease is curable or always remediable. He does assert, upon

the basis of years of practical application of the principles here enunciated and with all his strength, that at the present time the cardiopath is not receiving at the hands of medical men either the comfort or the length of days readily obtainable in a great majority of instances by the intelligent application of modern methods of diagnosis and treatment.

#### DISCUSSION

THE PRESIDENT: I think we are extremely fortunate in having a paper of this kind presented to us this afternoon from such authority, and I hope it may be freely discussed.

DR. L. E. DAUGHERTY (St. Paul): It has been my good fortune to have an office with Dr. Greene for some years, and I must confess for the first two or three years we felt very skeptical about these heart cases, and we felt that cardiovascular cases, while not beyond help, were almost hopeless, and while we did not attempt to treat them we felt when we did refer them they would not get much better, anyway, but our views have changed. We have seen Dr. Greene work and have seen his patients and patients we referred, and while we know that some of them do not get well, we see them get well enough to resume their daily life, and certainly their life is prolonged to a great degree. In our examination of patients before an operation, we examine the heart in a routine manner and try to detect any valvular lesions, and that is about as far as my knowledge of the heart goes. Without the x-ray and the screen it is difficult to diagnose these drop hearts and small hearts and we listen to these patients' hearts on whom we are about to operate and we make a note, perhaps, in our history that their hearts are all right and submit them to an operation. Several of these cases have had a dilatation of the heart, and we have had to refer them back to Dr. Greene. Some of them died because we failed to recognize these heart conditions. I think it is extremely important, and I am quite enthusiastic on this subject and my skepticism is all gone about treating these heart conditions, that the surgeon should attempt to diagnose these heart conditions before he operates. Many of the operations can be postponed until the heart is in such condition that it can stand the shock and grief of an operation.

These drop hearts are very interesting to me and very easily recognized. Dr. MacLaren and I have attempted to do considerable work along this line in diagnosing abdominal symptoms, and in my screen work when I look at the heart and see this drop heart I know where the stomach is going to be—I know the patient has an atonic stomach the minute I see the drop heart; but the importance of diagnosing this condition before an operation, from the surgeon's viewpoint, it seems to me is extremely great.

DR. V. J. LAROSE (Bismarck): I shall have to confess that in doing screen work I make it a routine to look over the chest at the same time, but, as I say, I must confess that where I find the so-called hanging heart, the drop heart, the fact has never occurred to me, as has been brought out by Dr. Greene today, that, while these hearts may be under the normal measurements,



there may be considerable dilatation; and that is something I am going to take home with me and work out. I feel very well repaid for the whole trip just to get that one point. I have been in the habit of observing the heart and making measurements; and where the heart exceeded a normal diameter, it was put down as an enlarged heart.

Another point Dr. Greene made, I believe I understood it this way: The size of the heart does not necessarily depend on the size of the individual. Now, that is another point upon which I have been in error, for I have always thought the greater the distance between the costal shadows the larger diameter we could expect in the heart.

I have observed the drop heart in a great many cases, and, as Dr. Daugherty said, in looking up the heart you can tell where the stomach will be; and in such conditions, for instance, I have always been inclined to associate the drop heart with tuberculosis.

DR. C. N. CALLANDER (Fargo): Dr. Daugherty called our attention to the necessity of having these careful examinations made before the operating work, but I have found several times in my experience that upper abdominal pains when carefully considered or differentiated have been cardiovascular in their origin, such as congested liver conditions; and in a good many cases I have found it very wise to look out carefully for those upper conditions to consider myself sure of gall-bladders, chronic appendicitis, etc.

DR. THEODOR BRATRUD (Warren, Minn.): I would like to ask Dr. Greene if there is any difference between diastolic and systolic pressures or both.

DR. L. D. BRISTOL (University): I had the extreme honor and privilege of working with Dr. Greene for two years, and to me there was nothing of more intense interest than the study of the heart; and it has been a great pleasure to me to have this whole problem brought again to my attention, although I have been out of the field of internal medicine for four or five years, but in studying these hearts with the x-ray plates the feature that impressed me the most was the valuable responses we get in the digitalis test, in the initial therapeutic doses of digitalis, coupled with the necessary rest. Furthermore, I found through my experience with Dr. Greene that I had myself the same skepticism of which Dr. Daugherty speaks—that there was not very much hope for these cases, and there was not very much use in spending time on them; but, as I went along and as I look back upon that work now, I feel that it is perhaps the most important element in the treatment of disease, and not only of the treatment of the heart diseases, but the treatment of any internal condition. I remember very well patients coming from this city, and other cities, for consultation, and I expected to get a diagnosis and treatment between trains, and for a while I thought perhaps that was quite possible; but as I look back now I see Dr. Greene's wisdom in insisting that the physicians inform their patients that they should make the necessary plans to remain for the time it is necessary to arrive at such diagnoses, which do take time.

We frequently find that this course of digitalis and a rest in a hospital for only a few days or for a week will go a long way towards clearing up a diagnosis; and, further than that, there is the necessity of having

sufficient time for the treatment of such conditions, as well as for frequent revisits, not only to the local physician, but to the consultant whom we have as a necessity in such cases.

DR. GREENE (closing): I have been very much honored by the free discussion this paper has received; and, in closing, I would merely make a very brief reference to some of the matters considered.

First, as to the physical build of the individual and its relation to the size of the heart: The point that I sought to emphasize primarily and chiefly was this, that, even though we are dealing with a Sandow as a muscular proposition, we are not likely to find an excessively large heart, or a heart reaching proportions which formerly we have considered loosely as normal. I tried to find, before I left St. Paul, but failed, one picture especially showing a 13.5-centimeter heart in a man who was a trained athlete of extraordinary muscular development. In a general way the height of the individual does not exercise much effect. One might say that his breadth does, that is, the question of narrowness of the chest, the width of the chest. The type of build does unquestionably exercise a great influence. As a matter of fact, the drop heart and the peculiarly slender build of the patient are practically inseparable. We owe our greatest knowledge, perhaps, of the physical characteristics with which it is associated to Professor Stiller, of Buda Pesth, who described chronic, congenital, universal asthenia, and brought together under one concrete description the congenital, structural, and functional impairment lying at the very root of the things which we have for centuries been treating as isolated phenomena, treating them as isolated, specific clinical entities when only a part of the general condition. One very deceptive proposition with respect to the appearance of the patient is the fact that robust-appearing fat people often carry a drop heart, and, if we can by any means get beneath that fat, we shall find that physically they are not at all what their *outline* would indicate; and it is in that type of patient that we often find dilated or overstrained drop hearts where we least expect them, and they are apt to be dilated because of the extra weight being carried by insufficient horsepower.

A reference was made to tuberculosis. So ideally constituted are these individuals for the development of the tuberculous process that I believe we would find a large majority of our pictures of the drop heart showing evidences of some tubercular processes in the lungs, usually obsolete. It is in general the ideal constitution for the development of tuberculosis, and it is the type of body we have associated previously with tuberculosis and visceroptosis, but we do not necessarily get the outward aspect of those actively tuberculous, and we may readily overlook the asthenic stigmata.

With respect to blood-pressure: In these cases all we can say is, that we have found no definite relationship, though in many individuals carrying the extreme types of heart the blood-pressure is likely to run relatively low and to rise under successful treatment to some degree. We have found that all of the so-called special and specific tests for cardiac adequacy or inadequacy are almost utter failures in our hands, and have come back to the simple methods, namely, the

effects of digitalis on the cardiac outline and symptoms subjective and objective. Epigastric pain or discomfort attends most of the decompensation cases that come to us, the victim of cardiac lesions complaining of dyspepsia. I do not know what percentage, but, off-hand, let us say seventy per cent or more actually come with the idea that it is their stomach that is at fault.

An enormous number of these cases have been called "neurasthenics." God save the mark! The giver of that name to our profession has many things to answer for. "Nervous dyspepsia" is one of the commonest of all complaints in connection with these hearts, and the underlying condition, chronic, congenital asthenia, is basic for both. The thing of interest to all of you, I believe, who will take this up along the lines laid down, will be the number of instances and the remarkable swiftness with which mysterious symptoms will abate under treatment.

I will show a few röntgenographic plates. I am not attempting to show any fine detail, and will confine my attention wholly to the central shadow representing the heart. My object in showing this first plate is merely to give you an idea of the actual size of a normal heart in a robust, muscular, athletic individual. I think some of you will agree, at least, that it is somewhat smaller than you had expected, if you are not familiar with the long-focus x-ray picture of the heart. It is but thirteen centimeters in total transverse diameter. For years we have been allowing men to carry fifteen- to sixteen-centimeter hearts as normal hearts. They cannot now be so regarded unless in the rarest of instances; at least, I do not meet them. Fourteen centimeters total transverse diameter would seem to me to be about the maximum for the most robust and well-developed male.

Here is another normal heart in a particularly healthy, robust, and athletic individual, the measurement being thirteen centimeters only.

Here is quite a different picture. I will call your attention first to the dropped stomach. You all see we have gastropexia of an extreme degree and the stomach is not only dropped, but is atonic as well. You can see the outline of a drop heart above. The conditions go together. The drop heart above, the low diaphragm which accompanies it, the voluminous, sluggish lungs all bear testimony to the generalized ptotic condition, shown in this particular instance in a somewhat more extreme degree than we would often find it, but serving to emphasize what I said in my paper, namely, that the drop heart is nothing but a ptotic heart. It is a low-lying, narrow, attenuated, suspended heart.

I will show you quite the real thing in a drop heart. Here is a little bit of a heart measuring, as I recall it, eight centimeters, and apparently actually suspended from the vessels above. The drop heart has been called the "hanging heart," very properly, for in extreme cases, such as this, it seems to be suspended by the great vessels at its base, and we know it to be so extraordinarily movable laterally as to justify the term "cor pendu-

lum." In certain conditions of dilatation, that postural mobility in itself sometimes seems to cause discomfort. Even if this heart were dilated sufficiently to increase its transverse measurement five centimeters, it would still fall within what we could call normal limits. We have accepted as normal in the past, hearts that were dilated even as much as five centimeters, and were capable of that dilatation because of their extreme congenital narrowness.

Here is a very pretty sample of the suspended heart. Few of them show it as clearly.

And here is another heart. It is a ptotic heart; and one of the commonest and most constant peculiarities of the common type of drop heart is shown typically here. It hangs straight as regards its right side, so we have to accept as probable the assumption that the right border of the sternum corresponds to the right heart border, which it conceals. We do not know that, of course, but we do know the total transverse dimension in this case is but nine centimeters. This man is six feet two inches tall and can hardly walk up a short flight of steps, on account of dyspnea and precardial distress.

I told you that the drop heart was very susceptible to toxemias and that it showed peculiar instability with respect to its muscular tonus. This series shows an excellent example of the extremely dilated drop heart occurring in a case of acute infection. The transverse diameter at the outset is an even sixteen centimeters total. I have here three pictures showing the changes during three months of treatment. By the way, this boy actually got up from his illness carrying that enormously dilated heart, illustrating one of the points I tried to emphasize in my paper about care in getting patients up after acute prostrating infections. This is the same heart, the second picture. There is a shrinkage of three centimeters in transverse diameter. Now, as shown by the final plate, showing the terminal results of treatment, the heart that the man actually possessed when it was undilated, was that of a very typical drop heart, yielding a total transverse measurement of ten centimeters only instead of the sixteen shown you in the first picture. Here is the third plate showing the astonishing shrinkage in outline.

One of the peculiar things about these hearts lies in the fact that as I said, if you see them under the fluoroscope they seem to be like a pulsating, flaccid sac, and if we analyze the picture we find that the right border is formed by the corresponding ventricle, the auricle lying well above. In the normal heart the right border is, of course, the right auricle. In this heart the right auricle is up here (pointing out its location). Above all things I want to emphasize the fact that these hearts may be greatly dilated and still appear to be normal unless one recognizes the type and the associated physical characteristics of their possessors, furthermore, that when dilated or overstrained they are capable of producing all kinds of symptoms and that those symptoms are usually wonderfully responsive to rest and digitalis.



## CHLORINE AS A THERAPEUTIC AGENT\*

By M. B. HALLDORSON, M. D.

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Few, if any, substances ever used in the practice of medicine have received less attention than chlorine. The text-books on materia medica or pharmacy which mention it at all, devote a few lines to its physical characteristics, acrid taste, pungent odor, and irritating effect on the mucous membrane of the respiratory tract, a good illustration of which is its fearful effect when used in recent trench warfare. It has been used as an intestinal antiseptic in typhus and typhoid fevers. It has also been tried for scarlet fever, and as a gargle in malignant sore throat, but has never been found a drug to be relied upon. As far as I know, this is all that can be learned from medical literature about this substance.

So completely has chlorine been lost sight of by the modern medical mind that the salubrious effects of sea air are universally attributed to iodine, its solid sister element, found in small quantities in kelp and other seaweeds. While chlorine goes into the formation of most of the principal sea salts, it is a gas which under certain conditions can be held captive without direct combination by the bases, notably calcium, and must therefore be present in the ocean atmosphere in millions of cubic feet to one of iodine.

Certain physiological facts seem to point to chlorine as being useful in combating some diseases. It is about the most active substance used in our physical makeup, its principal salt constituting .9 of 1 per cent of blood plasma. Chlorides are secreted in large quantities in normal urine, but diminish in certain diseases, such as acute tuberculosis and pneumonia. It disappears before death from those diseases, but increases again as the patient recovers, a fact which will be commented on later.

In the following lines I shall endeavor to give a short account of my experience with chlorine in the form of the U. S. P. solution, for the last ten years, or since I first began to make use of it, in August, 1906.

I first tried it as a last resort on a patient in the third stage of pulmonary tuberculosis,—surely a severe test of the usefulness of any drug. Its effect was so unmistakable and the improvement of the patient was so rapid and persistent that in six months her condition seemed

to warrant a belief in an ultimate recovery. Unfortunately, her husband then was taken ill with an acute attack of tuberculosis of the lungs, from which he never fully recovered, although he lived, often in fair health, until August, 1913. His wife died in March, 1909.

As a matter of fact, the first results from the use of this remedy were so uniformly good that in my ignorance and inexperience, I began to imagine that the long-looked-for "cure for consumption" had at last been found. It is needless to say that I have long since got away from that idea. Nothing short of the elixir of life itself will ever prove a specific for an infection of such endless variety, in kind and proportion, as the one commonly known as pulmonary tuberculosis, where, even should a specific against one of the germs be found, nature would be left unaided to cope with the rest, so that the net result would be nil, or next to nil.

The one exception is when the infection is due to the pneumococcus and the tuberculosis bacillus, as when tuberculosis flares up after a case of pneumonia. Here nature seems to use the same neutralizing material for both toxins produced, and in these cases, usually considered so hopeless, chlorine has proved a valuable aid to recovery.

As for other cases of consumption, consumption here meaning far advanced open tuberculosis, with broken-down immunity, I have ceased to look for permanent improvement from any mode of treatment.

But, through mixed successes and failures,—the unavoidable process of learning by experience alone,—I have year by year come to know the usefulness of chlorine as a therapeutic agent. It is as follows:

1. In all cases of pneumonia when the chlorides in the urine become scanty.

2. In tuberculosis, especially acute, "closed" cases, such as the typhoid form, and those of on-coming chronic trouble,—the breaking down of immunity, whatever the cause. In far-advanced lung cases it will, as stated above, probably be found of little or no permanent value, but usually will do some good, if only by improving appetite. The same may be said of meningitis, especially when acute. Also of chronic bone disease. Its chief value is during the early stage

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of tuberculosis infection, whether from an outside source or from the breaking down of an old focus, and before a new lesion is started in bones, lungs, meninges, or elsewhere.

3. In anemia and malnutrition in children when due to latent tuberculosis. As a rule, children respond to the action of this remedy better than adults.

4. In certain cases of summer diarrhea in children with high fever, great prostration, and restlessness.

5. In colds and la grippe. This I merely mention, for I have had little experience with it. It is especially of value for those with latent tuberculosis, where a stitch in time will often save the whole garment.

It goes without saying that a statement like the one above should be made with the utmost caution. When, on one hand, one is dealing with self-limited diseases, like pneumonia and la grippe, and, on the other, with tuberculosis, with its vagaries, long-continued course, and frequent surprises for better or for worse, the greatest care should be exercised in attributing therapeutic value to any remedy or any mode of treatment. This cannot be too strongly emphasized. On the other hand, when the use of a certain drug is followed by improvement in the same disease with sufficient regularity to exclude chance and coincidence, it is only fair to attribute the result to the drug; and, furthermore, when a good and sufficient physiological reason can be found to explain this effect, it would seem that the faith in the remedy is well founded.

Now, the physiological reason for the use of chlorine in pneumonia is the well-known fact that chlorides in the urine diminish in all cases of that disease, and that, if they disappear altogether, the patient invariably dies. The reason for this is, that the pneumonia exudate is very rich in chlorides, so much so that it is even possible to tell that an extension has taken place in the lungs by a sudden diminution of chlorides in the urine. And on the other hand, when resolution begins, the urine chlorides correspondingly reappear.

It would seem that if chlorides diminish, chlorides should be supplied. That is the way I first reasoned, and, acting on that theory, I used to leave sodium chloride tablets with my pneumonia patients, directing that they be used in the patient's drinking water. On the whole this seemed to do some good. But some of those patients used to get very sick, and I would have a

hard time pulling them through; and one died during a relapse, due to sudden circulatory changes. So finally, in October, 1914, I decided to try the chlorine solution on a three-months old baby with pneumonia in both lungs, who in spite of sodium chloride and other modes of treatment seemed to be dying. This child, to my surprise and great satisfaction, recovered. I have used chlorine solution since in all cases of pneumonia where I have considered it necessary; and I must say that I have never seen a patient with uncomplicated pneumonia in any danger of his life while taking it, and I have never seen it fail to give almost immediate results in improvement.

The reason why chlorine is so efficacious in this disease is obvious. The blood plasma does not give up its sodium chloride simply to mix with the pneumonia exudate. It gives up its chlorine for the purpose of converting the deadly toxins produced by the pneumococcus into chlorides, thus rendering them innocuous and easily eliminated. How great a sacrifice this is can easily be understood when we consider that sodium chloride solution minus its chlorine is a sodium hydroxide solution, a very unhealthy medium for our blood cells, especially under a strain.

The same reason holds good for the use of chlorine in tuberculosis. Here the blood plasma also gives up its chlorine, and for the same purpose. This explains the frequent alkaline urine and hypo-acidity of the stomach in that disease, and also its many points of similarity to pneumonia.

The dose of chlorine solution is  $\bar{5}$ ss. to  $\bar{5}$ i; and on account of its disagreeable physical characteristics it should be combined with some vehicle. Any of the tasteless extracts of codliver oil will answer the purpose, especially the one prepared by Parke, Davis & Co., with which it forms a very good mixture.

In pneumonia this may be given as follows:

R

Sol. chlori

Extr. ol. morrh., aa  $\bar{5}$ iv.

M.

Sig.:  $\bar{5}$ ss. every three or four hours, depending on the condition of the patient. If the case is very serious this may be given as often as every half hour until relief is obtained. The dosage is the same for acute tuberculosis.

In chronic tuberculosis the same dose may be given before meals and at bedtime. Children under four years may be given a teaspoonful of the above mixture three to six times a day, ac-

cording to what condition is to be met. To a child under one year twenty drops of chlorine solution in forty drops of extract of codliver oil may be given three times a day. An overdose will cause irritation of the stomach, which, however, is soon overcome by the use of sodium bicarbonate. The chlorine should then be stopped for the time being, but if necessary may be resumed within a few days in somewhat smaller doses.

Colorless chlorine water is useless. Nothing but the greenish solution described in the U. S. P. should be made use of.

To be of material benefit a drug must be well understood by those who would make use of it. Chlorine is no exception to this rule. Let it never be forgotten that it is no cure for any disease. All it does is to produce a condition in certain diseases under which the curative forces may act to a better advantage, by supplying a material of which nature's store is becoming exhausted. The saying that a physician is a hod-carrier to nature is therefore never more true than when it is employed.

The following case-reports will serve as an illustration of what has been said above:

CASE 1.—Miss C., aged 25, was taken ill with pneumonia on March 5, 1916. She was an unusually tall girl, anemic and poorly nourished, giving a history of long-continued indigestion. When I first saw her she had an involvement of the left lower lobe with considerable effusion; temperature,  $102^{\circ}$ ; pulse, 140; respiration, 35. Her face was suffused with purplish color and she was very much distressed and prostrated. It was altogether an unpromising case.

She was put on equal parts of sol. chl. and extr. ol. morrh.,  $\bar{5}$ ss every three hours, with the result that within forty-eight hours her condition improved beyond all expectation. The purplish hue disappeared, and the pulse dropped to 120, although the temperature and respiration remained about the same. She failed to have a crisis, developed empyema, and was in due time operated on. She made a good recovery; as a matter of fact she never was in any danger of her life after the first forty-eight hours.

At the end of the seventh day the patient's urine showed normal amount of chlorides, and the dose of chlorine had to be decreased to avoid irritation of the stomach.

CASE 2.—Mr. O., aged 49, had Bell's paralysis in 1912, facial erysipelas in 1914, and previously had had two attacks of pneumonia.

This patient was taken sick with pneumonia on the 8th of last March, the left upper lobe being involved. His temperature ranged from  $100^{\circ}$  to  $102^{\circ}$ ; pulse, 90; respiration, 30. It seemed in all respects a case which would need no special treatment, excepting good nursing. Accordingly, the patient was put to bed, a nurse obtained, and purely symptomatic treatment given;

however, I kept a close watch on the chlorides in the patient's urine, which diminished somewhat, but not to an alarming extent. His condition remained about the same until the fifth day, when suddenly the right lower lobe became involved, and therewith the condition described as follows in the nurse's case-history: "Temperature,  $101.6^{\circ}$  (it had been down to  $98.8^{\circ}$  that morning); pulse, 76; respiration, 44; cheeks, deeply flushed; dozing at intervals; moans a great deal; respiration, quite fast and short; restless; mind wandering; pulse getting weaker; coughs frequently; expectoration, thin and bloody; has a peculiar click in his throat."

I examined the patient's urine, and found that the chlorides had almost disappeared. The urine turned milky on adding nitrate of silver solution, but there was scarcely any perceptible precipitate.

The patient was now given an ounce of chlorine solution in half an ounce of extract of codliver oil, and an ounce of the same mixture every hour until improvement was perceptible, which was at the end of two hours. From that time on the patient's condition was quite satisfactory, and he made a good and complete recovery.

CASE 3.—N. N., male, aged 38, widower. His wife died of pulmonary tuberculosis in January, 1913, among unusually filthy surroundings; one sister dead from cause unknown.

In August, 1913, this man was suddenly taken sick with hemorrhage of the lungs. I saw him an hour or so later, and found that he had an involvement of the entire right upper lobe, with signs of a small cavity near the apex. He had a temperature of  $103.2^{\circ}$ , and felt very weak and exhausted.

Outside of the usual treatment for hemoptysis, he was given equal parts of chlorine solution and extract of codliver oil, a tablespoonful every three hours.

I saw him again the next morning. His temperature was down to  $101^{\circ}$ ; the bleeding was all stopped; and he felt much better. He was given strict orders to remain in bed for the next three days, when I would see him again. When I went back to see him I found him out on his binder cutting grain. He has had no attention since, excepting that I examined his lungs once last summer. The consolidation was still there, but the cavity seems to have healed up.

What part chlorine played in giving this man his immunity I am not going to say, but whoever will come and look into his house must agree with me that it was something besides fresh air and right living.

CASE 4.—P. P., male, aged 21, single. Family history, negative, except that one sister had symptoms of on-coming lung trouble with the physical signs of consolidation of the right upper lobe, in the winter of 1912. She soon regained good health from the use of chlorine solution, and, so far as I know, she has been well since.

Personal history, negative.

The patient was taken ill in May, 1913, with dry pleurisy, went away to a hospital where his trouble was diagnosed as typhoid fever. He was discharged after five weeks' illness, and advised to look out for his lungs. He then worked, being in apparently good health until the last days of August, when he came to see me looking extremely ill, with a temperature of  $103^{\circ}$ , and a pulse of 130, weak and exhausted, and with



the physical signs of tuberculous infiltration of the entire left lung posteriorly. He was told to rest in the open air, and was given 5ss of chlorine solution in a tumblerful of buttermilk before each meal and at bedtime, with the result that in ten weeks he was apparently well, and had gained 24 pounds in weight. He then went out to his claim in Montana, and I have not heard of him since.

Whether this patient's last trouble could have been prevented by the use of chlorine during his first illness, may be a question. Three other patients with similar symptoms diagnosed as abdominal tuberculosis, and treated with chlorine during the last five years, got well without having subsequent lung trouble or other forms of tuberculosis, at least so far. But, however that may be, there is no doubt in my mind whatever that except for the treatment this man would have become a victim of tuberculosis of the lungs.

CASE 5.—R. M., male, aged 18, single. This boy had for several years a small nodule in the left epididymis, which occasionally would give rise to a sharp pain lasting a few minutes, but otherwise would cause no trouble. On December 22, 1913, he was skating on a small lake when the ice gave way, and he fell in, becoming thoroughly wet and chilled. The next morning severe pains in his left testicle came on, and this time would not let up, so I was called. I found that he had an acute inflammation of the left testicle, extending up the cord as far as the internal ring, and involving fully two-thirds of the scrotum. There seemed to be no involvement of the seminal vesicles. The case did not look promising, as involvement of the scrotum is supposed to mean tuberculosis, and therefore removal of the affected parts would seem necessary, but the question was where to find enough scrotum to cover the other testicle. However, it never came to an operation. The patient was put to bed, with the testicles elevated and heat applied. He was put on equal parts of chlorine solution and extract of cod-liver oil, a tablespoonful every three hours. Improvement began on the fourth day, and rapid recovery followed, resulting in complete atrophy of the testicle. He has had good health since.

CASE 6.—Mrs. T. B. N., aged 40, married. Family history, negative.

This patient had pleurisy with effusion in 1906. In 1908 she had la grippe with local bronchitis, which cleared up in a short time. In 1910 she was suddenly taken ill with chills, high fever, vomiting, and great prostration. On examination I found that she had a pus tube on the right side, and her pelvis was full of exudate. The acute symptoms lasted for six weeks, but finally the exudate all cleared up without adhesions, and good health was restored.

I then repeatedly urged her to have the tube removed, but she persistently refused, and the result was that four years later, in 1914, it again began to leak. This time she had ordinary tuberculous peritonitis, which cleared up without operation. After this, however, she never regained her former vigor, and, as she still refused to be operated on, rather kept aloof for a year, or until July, 1915, when after a severe cold her lungs began to break down. She has since gone from bad to worse, following the course of a rather acute case of consumption.

I have given this case for the reason that it illus-

trates, not only the course of many cases which end in consumption, but what may be expected from the use of chlorine. During all the acute attacks, while the lesion was closed and the infection purely tuberculous, there could be no mistaking the fact that the patient was greatly benefited by the use of this drug. It would always bring her comfort and relief from toxemia. There were times when her stomach, which was often very irritable, would retain nothing but dilute chlorine solution, which surely would show that its use was indicated. Again, as soon as the lungs began to break down and the trouble became open, the infection mixed, its use became correspondingly problematical. It would seem to help at times, but, if pushed too hard, would irritate her stomach and have to be discontinued. I still give it off and on, in the hope that it may prolong life, but without expecting other results.

I selected the first two cases for the reason that, occurring at the same time, they proved to me conclusively and beyond all doubt that there is after all a scientific way to deal with at least some cases of pneumonia. I say some cases, for no one drug will control all cases of a disease, and whoever persistently bets on one card is bound to lose. But never have I had an experience so convincing as that of analyzing the urine of those two patients at the same time in the afternoon of March 13 last, Case No. 1 showing almost excessive chlorides, and the patient being in a very satisfactory condition in spite of complications and an unpromising beginning, while Case No. 2 showed next to no chlorides, and, although starting out as an easy case, was in a dying condition.

#### DISCUSSION

DR. R. H. RAY (Garrison): I remember that in the clinics of the hospitals in Philadelphia about six years ago they were using sea water subcutaneously quite a little bit, although I did not pay particular attention to the reasons for giving sea water, but I believe the French were the ones who started this idea originally. I just want to ask Dr. Halldorson if their idea in using that is not about the same as his idea in using the chlorine?

DR. GEO. A. DURNIN (Westhope): I have not had an extensive experience in the use of chlorine in any of the conditions Dr. Halldorson refers to. However, I am a neighboring practitioner of Dr. Halldorson's, in fact, he is my competitor, being sixteen miles away, and I have had occasion to know of his manner of handling the cases that he refers to, and, I know that it is the opinion amongst the local medical men there that Dr. Halldorson has had more than usual success in his treatment, caring for these tuberculous patients and tiding them over attacks. Whether the treatment he advocates has a real basis or not, I would not pretend to discuss, but I would simply testify to the fact that he has had success in his cases, more so than what the rest of us probably have had in our methods of treatment. I would just emphasize the first two cases he refers to there. In one case pneumonia developed in a strong, healthy, and robust-looking per-



son, with very few signs to tell that there was going to be any trouble. In the other case, an unpromising one, the patient had every sign and symptom of a grave infection, and was a very grave case, but it came along clearly and easily under the treatment, while the patient who looked strong and robust soon showed grave constitutional symptoms. Putting this patient on the chlorine treatment, he got within two or three hours decided improvement. These things, of course, as he suggests, may possibly be coincidences, but the fact remains he has tried this thing conscientiously a number of years, recommends it to practitioners as being worthy of trial, and I believe there is something in it.

DR. THEO. BRATRUD (Warren, Minn.): I have not had any experience with chlorine in solution as a therapeutic agent, but in several cases with raw wounds spreading following dynamite explosions, I have had very good results in clearing up the superficial infection, and also in infected abrasions, and likewise in lesions where the infection is superficial.

DR. HALLDORSON (closing): In answer to Dr. Ray's inquiry in regard to sea water: I started with sodium chloride solution back in 1905, the year before I used chlorine, and it was on the same patient. I was not exactly telling the truth when I was talking about chlorine, instead of sodium chloride. I used that for a whole year, and I do not know whether that had anything to do with the way my patient responded to the chlorine or not, but I believe fully what the doctor says—that the use of sea water subcutaneously was on the same principle. You can never use a thing like that subcutaneously in a chronic disease to produce any effect. The only way you can ever get enough of

it into the system is through the stomach—that is the only way I have ever seen it.

While I am on that point I will tell you of one of those patients that I mentioned. I did not quote the case, but it was one of the patients who had developed tuberculosis in 1907 and remained in fair health for years afterwards. He was suddenly taken sick in 1909 in the fall after a severe headache. The next day he was found unconscious, and he had been in pretty fair health for a few months, so I did not know just what to think about it at first; and in two days when his condition became worse, and he did not regain consciousness, I called a neighboring practitioner, Dr. Durnin's brother, and he diagnosed it tuberculous meningitis. The man was not only unconscious, but absolutely powerless. He was like a corpse, only he was breathing and his pulse was beating. As he could not swallow, I made up a mixture of two ounces of chlorine solution and two ounces or an ounce of Bovinine in a tumbler of milk, and passed that into his stomach through a stomach tube, but he was absolutely dead to the world. In about six or eight hours I gave him the same dose, and the next day I noticed some improvement. I kept it up, and on the third or fourth day when I was going to pass the tube, he said, 'Is there no other way than this?' That was the first thing he said, and I replied, 'Surely, if you can swallow I do not have to use the tube,' and he swallowed it then, and about three days afterwards his mind cleared up, and he lived four years.

I have had no experience of wounds, whatever.

I am more than grateful to my friend Dr. Durnin for his remarks on the subject because he is the only man in his vicinity who knows of my experience.

## INFECTION THEORY OF PRE-ECLAMPTIC TOXEMIA AND ECLAMPSIA\*

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This paper aims to throw clinical light upon the possible etiology of pre-eclamptic toxemia and eclampsia and to suggest a measure of prophylaxis. In the field of obstetrics there is not a more interesting or more important problem than that of the etiology of this condition. The literature teems with theories, with arguments pro and con, so much so that Zweifel tersely calls the condition a "disease of theories." The main theories can be grouped succinctly under five heads:

1. Bacterial.
2. Auto-intoxication.
3. Nephritic.
4. Liver.
5. Ovular and placental.

The bacterial theory was presented as early as 1884, and since then data, pro and con, have been brought forward regarding the bacterial findings in the blood, urine, and tissues of the mother. The main advocate of this theory has been Stroganoff,<sup>1</sup> and his reasons for advocacy are well worth citing:

1. General disease affecting all parenchymatous organs.
2. Acute infection commencing explosively or after a prodrome.
3. Fever accompanies it, especially a post-mortem thermic rise peculiar to an infectious disease.
4. One attack confers immunity.
5. Marked genus epidemicus. In 1897 25 per cent died. In 1898 he had nineteen cases with a zero mortality.

\* Read before the Hennepin County Medical Society.

6. It is impossible to explain the increase of eclampsia in populous centers otherwise than by accepting the infection theory.

7. As an argument against the uremic and fetal theories he mentions 126 cases, 10 of which occurred in the early months of pregnancy, and in which, after the cessation of eclamptic seizures, the pregnancy continued to normal termination. This could scarcely occur if eclampsia were due to toxins generated by the fetus. Early eclampsia usually affords the worst prognosis.

Such an authority as Williams<sup>2</sup> does not believe that satisfactory proof has been brought forward to sustain this theory.

The auto-intoxication theory<sup>3</sup> was brought forward by Bouchard, laying stress upon the toxins generated in intestinal stasis. This theory, I believe, is tenable only from the standpoint of direct infection or absorption of toxic products resulting from the colon or other intestinal organisms. The frequency of colon infection of the urinary tract, without catheterization, in toxemia, would point to hematogenous flooding with intestinal bacteria due to lowered resistance of the gut from pressure and stasis. The study of the work of Pasteur, Metchnikoff, Rosenow, and others, leads one to give great attention to a large biologic theory of disease.

The nephritic theory lays stress upon the presence of albuminuria and concomitant signs of nephritis with insufficient kidney functioning, the products of maternal or fetal metabolism being the culpable agents.

The liver theory accounts for the condition by the derangement of the liver structure and function as evidenced by anatomic and functional pathology.

The ovular and placental theories maintain the condition to be due to the generation of toxins from the products of conception or to infarcts of chorionic villi, and bring to their standard the force of the necessity of pregnancy in obtaining the condition.

In 1914 Young,<sup>4</sup> of Edinboro, brought forth an interesting piece of work, the conclusions of which were that accidental hemorrhages were due to thromboses of the uterine or ovarian vessels, and he proved to his satisfaction that the toxemia of pregnancy was due primarily to placental infarcts caused by thrombosis of uterine vessels with resulting death and autolysis of placental tissue producing toxins which forthwith poured into the maternal circulation. He discredited the albumin theory by calling to mind

that toxemia can exist without albuminuria. In relation to accidental hemorrhage he quotes statistics of Essen-Møller showing albuminuria present in 11 per cent of confinements, but present in from 37% to 50% of accidental hemorrhages. Placental infarcts, Young claims, are due to interference with maternal circulation; vein occluded means hemorrhage, artery occluded means necrosis. He believes that this interference with the circulation causes death to the part supplied, and in the subsequent autolysis of this tissue toxins are developed, which enter the circumambient maternal circulation. If the placenta separates, closure of the uterine vessels prevents entrance of the toxins to the maternal circulation. If small infarcts occur, the mother may be able to eliminate the toxins with evidence of a nephritis of a varying degree of intensity and possibly without the culmination of an eclampsia; but, if infarction and autolysis with absorption are widespread and rapid, toxemia and death may occur before a nephritis can manifest itself. Young defended this theory of accidental hemorrhage and toxemia with specimens and animal experiments. The question arises as to what causes the thromboses.

In my experience the great majority of thromboses are caused by infection. Granted Young's theory of the thrombotic origin of accidental hemorrhage and infarction with consequent toxemia, can we not go deeper and prove the fundamental action of infection?

Angus McLean,<sup>5</sup> in experimenting to find the cause of thrombosis in abdominal surgery, came to the conclusion that "the main contributory causes are, probably, a low grade infection, not of a sufficient virulence to be noticed clinically, and the slowing of the blood-stream."

In phlegmasia alba dolens the profession is almost unanimous in placing the blame of the thrombosis upon an infection. The question arises as to whether a low grade infection could not cause the thrombotic process said by Young to be the cause of placental infarction with toxemia, or, if Young's theory is not tenable, could not a low grade bacteremia or bacterial toxemia, with its effect upon liver and kidneys, when added to the strain of pregnancy, be the deciding factor in precipitating the toxemia? I believe that clinical data warrant the consideration of a possible affirmative answer. Absolute proof must come from bacteriologic findings in clinical cases and from animal experimentation. To that end we have instituted experiments upon preg-

nant animals, but before results can be obtained indirect clinical data should be considered in order, if possible, to institute prophylactic measures.

For the past six years I have been interested in following cases with general pathologic conditions due to infections and in trying to find the possible portal of entry. The work of Poynton and Payne, Rosenow, Hartzell, Henrici, and others has clearly proved the relation of infection to chorea, articular and muscular rheumatism, and to heart and kidney pathology. In practically all cases with rheumatic manifestations, foci of infection can be demonstrated in the teeth, tonsils, or elsewhere. We are every day hearing of and seeing cases of obscure origin clearing up after the eradication of foci of infection. We have witnessed the disappearance of muscular pains upon the removal of pus pockets in teeth and tonsils, and Rosenow has proved that these pains are due to bacterial emboli in the muscles. Cases of neuritis have cleared up under the same procedure. I have seen a case of recurrent iritis, in which lues had been excluded by all clinical and laboratory means, clear up and remain absent after the removal of a so-called chronic appendix. Especially have I been impressed by the cases of nephritis which cleared up and remained so only after the thorough eradication of dental and tonsillar infection. That seemingly small foci of infection can profoundly influence the general system is a matter of everyday knowledge. Streitman lately reported a case in which the eradication of an apical abscess, demonstrable only by skiagraph, caused the cessation of a glycosuria which had previously been resistant to dietary and other forms of treatment. Others have experienced the same results. William Logan, of Chicago, examined the blood of 162 cases of dental infections entering his office. Forty-seven of 52 cases with blind apical abscesses gave a leucocytosis, and 100 out of the 162 cases had blood changes held to be a sequel of chronic oral infection. Abnormal blood findings were present in 48 out of 110 pyorrhea cases examined.

The nephritides and abnormal blood pictures consequent to sinus infections are attested by operators. That an infective process may account for many of the nephritides in pregnancy is a possibility worthy of consideration.

In 1904 William Stone, at the Lying-In Hospital, New York, in remarking upon the lesions of the kidney found in sepsis, said, "Such a con-

stant occurrence must be sufficient argument against the idea of earlier surgeons, whose patients were thought to die from nephritis rather than from sepsis. This pernicious effect of sepsis upon the kidneys more than suggests the possible secondary place of the lesion of the organ in eclampsia and that the comparative study of eclampsia and sepsis may help in the solution."

In 1905 Gould and Howell, in the *London Lancet*, reported a case of chorea in pregnancy. That chorea is a manifestation of infection is little open to doubt. This case of chorea was treated for at least two months in the hospital with the intermitting presence and absence of albuminuria. Finally, eclampsia supervened only five days after the reappearance of albumin. I mention this case to bring out the need for extra care in any case in which infection is known to be present.

Cases have been reported of eclampsia in the mother and nephritis in the child. Many have adduced from these cases that the products of fetal metabolism causing the nephritis in the child were the cause of the eclampsia in the mother. We have proof that organisms can pass from mother to child, and it is possible that an infection was the cause of both conditions.

Consider the number of eclamptics that run a temperature. The work of Warnekros<sup>6</sup> on blood cultures in cases of pregnancy presenting an antepartum temperature of 38.5° C. is extremely interesting in its possible relation to the infection theory of eclampsia. Out of 25 cases 18 gave positive antepartum cultures, whereas only one of these gave, on the day following delivery, a positive culture. To me this presents the difficulty to be experienced in obtaining and establishing blood-culture proof in toxemia cases in which a subinfection may be present. It also shows what a profound effect the emptying of the uterus has upon the ability of the mother to eliminate pathological elements in the blood. Could not this have a parallel in the beneficial effects of emptying the uterus in cases of toxemia? Postpartum eclampsia might result from the continued bacterial content with its effects on kidneys and liver, or, if Young's theory is correct, from a piece of autolysing placenta still remaining in the uterus. Young feels so sure of his position that he believes a postpartum eclampsia warrants a uterine exploration for retained placental tissue.

In 9 of the 18 positive cultures obtained by Warnekros streptococci were found. Strepto-



cocci are the most common organisms found in tooth and tonsillar infections, and their presence would turn our attention to those portals of entry in taking our histories and in making our complete physical examinations. In this relation let me call attention to the absence of data regarding dental infection in many obstetrical histories and examinations. This holds true because we are not as yet sufficiently alive to the importance of dental infection. If we found foci of infection in any other part of the body of half the magnitude of many dental infections they would be constant and insistent sources of anxiety. By the same token, if a nephritis were accompanied by an empyema or a collection of pus, situated anywhere, we should immediately point to the latter as a possible cause of the condition, whereas tooth infection is believed by many to be so common that it must be an almost negligible quantity in the causation of general pathologic conditions. Late statistical reports substantiate the frequency of dental infection, but clinical facts\* do not substantiate the view that they are relatively unimportant. Dental infections, open or concealed, are frequent sources of disaster.

In three cultures Warnekros found staphylococci. This is an organism found in secondary tooth infections. I wish to emphasize the finding of this organism in connection with one of my cases outlined below in which an osteomyelitis was present in pregnancy. Dr. J. Frank Corbett, in his experiments in thrombosis following trauma and ligation of vessels with infection, has found that a staphylococcal infection in the vicinity, though not gaining access to the vessel, can cause a thrombosis.

The colon and mixed infections came next in order in the blood-culture findings of Warnekros. This would point to intestinal entry due to pressure and stasis, and would account for those cases of pyelonephritis due to the colon bacillus, the frequency of which has made many men lean to the infection theory of eclampsia. Operators who have opened the abdomen in the last months of pregnancy have expressed astonishment at the possibility of the bowel functioning properly under the conditions of abnormal pressure obtaining. The important rôle played by pressure is also brought out by the greater number of cases of kidney insufficiency upon the right side, corresponding to the oblique diameter usually occupied by the pregnant uterus and the long diameter of the fetal head. Above the brim of the pelvis practically all cases coming to au-

topsy at the sixth month or after, show a dilatation of the ureters. As Halbertsma<sup>9</sup> has estimated that a pressure of 5 gm. acting upon a length of 8 mm. will keep back 400 gms. of urine, we can see how the pressure of the uterus in causing a damming back of urine can lower the vitality of the kidney, and cause insufficiency of function with a lowered resistance to hematogenous infection. Buschmann<sup>9</sup> has reported three interesting cases of unilateral impairment of kidney function in toxemia of pregnancy, in one of which a pyelonephritis was present.

Both sepsis and pre-eclamptic toxemia present varying degrees of acidosis. I mention three various parallels to point to a possible relationship of cause and effect.

With such parallels and conjunctions before our minds, I wish to present the last thirteen cases of pre-eclamptic toxemia and eclampsia that have come under my observation. They were typical cases, so I will dwell especially upon the histories of infection, where obtainable, and the evidences of infection.

CASE 1.—Para. i. Many attacks of tonsillitis. Temperature 99.4° when first seen. Blood-pressure 190. Four carious teeth, marked pyorrhea. Severe edema of extremities and face; severe albuminuria. No fundic changes. Eclampsia.

CASE 2.—Para. iii. Scarletina in childhood; no complications. Two previous pregnancies and labors normal. All teeth supposedly out; double plates worn. No skiagraphs for retained roots and apical abscesses. Pharynx and tonsils inflamed. Enlargement of thyroid gland with typical signs of hypothyroidism. Edema; albuminuria; no fundic changes. Blood-pressure 230. Temperature when first seen 100°. Ran a temperature of 99.3° intermittently up to twenty-sixth day after delivery. Eclampsia.

CASE 3.—Para. i. No diseases of childhood. Severe mouth infection and acne vulgaris. Question of endocarditis. Temperature when first seen 99.6°. Albuminuria. Eclampsia.

CASE 4.—Para. ii. Typhoid fever at nine years. First child three and one-half years ago; no complications. Since last child many attacks of tonsillitis and much trouble with teeth. Carious teeth and pyorrhea. When first seen, temperature was 100.2°. Blood-pressure 170. Eclampsia. Manual delivery. For twenty-one days ran temperature up to 100°. Albuminuria.

CASE 5.—Para. i. History of many attacks of tonsillitis and one attack of rheumatic fever. Physical examination revealed many carious teeth and a marked endocarditis. Edema of extremities, albuminuria, and blood-pressure of 180. Temperature 99°-100° two weeks before convulsions and delivery.

CASE 6.—Para. i. Dental abscess, dental caries, chronic tonsillitis, chronic endocarditis. Edema, albuminuria, no fundic changes. Ran a temperature to 99°

for ten days before delivery. On day of delivery temperature jumped to  $101^{\circ}$ . No convulsions.

CASE 7.—Para. i. Dental infection. Albuminuria and high blood-pressure, both increasing under treatment. Labor induced. Puerperium complicated by phlebitis and breast abscess. No convulsions.

CASE 8.—Para. i. Appendicitis in childhood. Appendix removed. Three attacks of osteomyelitis with operation; last operation nine years ago. During pregnancy tonsillitis followed by peritonsillar abscess and activity at site of old osteomyelitis focus. Urine normal up to ten days before delivery, and convulsion which occurred when the head was on the perineum. Temperature  $99.4^{\circ}$ . Albumin never above 25 per cent by volume, and blood-pressure never above 146. On the twenty-first day of the puerperium patient began to have a few furuncles. Urine normal; no sugar. Within the next few weeks had beginning infection in both breasts. Under all precautions and treatment patient showed a marked susceptibility to infection.

CASE 9.—Para. ii. Normal during first pregnancy. First labor, forceps delivery with dead child. Entered hospital in this pregnancy near term with albuminuria and a severe urticaria of one month's standing. Temperature normal. Leucocytosis 30,000; polymorphonuclears 91 per cent on day of delivery. Day following delivery leucocytes dropped to 17,500, with polymorphonuclears 83 per cent. The urticaria immediately began to show marked improvement.

This case is interesting because of the rapid fall in the leucocytosis after delivery. It parallels the fall in positive blood-cultures following delivery.

CASE 10.—Para. i. Term—hand said to have been infected fourteen days before entrance to hospital. Seen by physician five days before entrance to hospital. Cellulitis, incised and drained. Temperature at that time  $101^{\circ}$ . Since incision vomiting has been persistent. Upon entrance to the hospital physical examination revealed: cellulitis of palm, dental caries, pyorrhea and chronic endocarditis. Albuminuria. Leucocytosis 10,000, polymorphonuclears 79 per cent. Temperature in hospital never above  $99.1^{\circ}$ . Under treatment convulsions did not supervene and delivery was effected.

CASE 11.—Para. vii. Eighth month of pregnancy. No complications in previous pregnancies and labors. Said to have been perfectly well the day before convulsions began. Labor and convulsions began in morning. Brought to hospital, Voorhees bag inserted, version, and breech extraction at 5 p. m. Temperature steadily rose to  $102.4^{\circ}$ . Temperature on admission to hospital not recorded. Convulsions ceased on night of delivery to begin again two days later. Developed cough. Pneumonia diagnosed at right apex. Blood culture showed streptococcus viridans. Patient died in convulsion. No autopsy allowed. Marked jaundice. Urine showed leucin and tyrosin crystals in addition to albumin. Bilirubin in stool positive. Apparently a picture of acute yellow atrophy of liver following infection. I believe the eclampsia was secondary to the infection.

CASE 12.—Para. ii. First pregnancy and labor normal. Never been sick in bed. Physical examination

negative to infection except for one large cavity in a carious molar and pillars and tonsils reddened. Patient said that tooth had been filled, but during this pregnancy the filling and tooth had crumbled away, and she had had trouble with toothache. Throat slightly sore at times, but she never felt sick. Temperature  $99^{\circ}$  when first seen. Albuminuria. Blood-pressure 204. Leucocytes 13,300. Polymorphonuclears 80 per cent. Convulsions. Manual delivery.

CASE 13.—Para. iv. Term—pneumonia nine years before birth of children. Previous pregnancies and labors normal. Last child three years ago. Since birth of last child has had much trouble with teeth. During this pregnancy said by husband to have suffered from toothache and muscular pains. Very dyspneic on exertion. Walked to hospital in labor with temperature of  $101^{\circ}$  when first seen. Complained of dizziness, and went into convulsions. Urine boiled solid. Slight edema. Blood-pressure 210. Delivered. Temperature gradually rose to  $104^{\circ}$ . Never regained consciousness. Patient died in her seventeenth convulsion forty-seven hours after entering the hospital.

I desire to add one case of severe accidental hemorrhage in a woman presenting fifteen carious teeth with severe pyorrhea. No history of trauma. Did infection cause thrombosis with accidental hemorrhage?

In these histories, in addition to histories of infection and demonstrable foci of infection, two facts are conspicuous: (1) the number of cases running a temperature when first seen and thus not accounted for by manipulation, and (2) the multiparæ having previous normal pregnancies and labors who gave definite histories of symptoms of infection occurring since the last labor and especially during the pregnancy in which the eclampsia occurred.

These clinical data point to the fact that we should be assiduous in eradicating foci of infection as soon as a case of pregnancy presents, or, if this is not possible, especial care should be exercised in determining the approach of toxemia. Especially is this significant in respect to dental infection. Every case should have a thorough dental examination and should be under the care of a dentist throughout pregnancy. There is a feeling among the laity and among some of the profession that any dental procedure is dangerous at this time. I have never seen a case which has resulted in the disaster of an abortion; and many leading dentists have assured me that such a disaster has never come under their observation. Such men would undoubtedly use their judgment in avoiding long, tiring, painful operations.

In the prophylaxis of pre-eclamptic toxemia I

believe that adherence to the infection theory of-  
fers the best prospect of success.

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## OPHTHALMIA NEONATORUM

At the meeting of the Minnesota State Board of Health, held in St. Paul on October 10, some new regulations were adopted for the care of the new-born. These regulations have been under discussion for many months, both by local and state organizations, and the regulations prepared by the Minnesota State Board of Health were submitted to the American Society for the Prevention of Blindness, which, in turn, submitted them to oculists in various parts of the country, men known to be authorities on the subject of eye diseases, and without hesitancy they were unanimously endorsed and were recommended to other states for adoption. These regulations are not intended as laws for strict enforcement, for they are only educational; but they will probably be followed by the general practitioner, and particularly by the obstetrician and the midwife. Their adoption means so little trouble that it seems improbable that anyone will hesitate to follow the suggestions of the Board.

A few drops of a one per cent solution of nitrate of silver is to be instilled into the eyes of every new-born child. It will be no hardship for either the physician or midwife to carry a small supply of the solution, and to apply it immediately. It does no harm under any circum-

stances, and is recognized as a safe preventive of ophthalmia.

The practice may not reach the remote country districts readily, because frequently in such places a neighbor attends the confinement of a woman, but usually, unless the distance is too great, a physician is in attendance, or at least is called within a short time; and in this way it may be possible to reach all of the new-born.

## A CHRISTIAN SCIENCE SANATORIUM

The Christian Scientists of Boston have determined to build a Christian Science sanatorium for the benefit of those they designate as "so-called sick." A member of the church has given twenty acres of land, and with a fund from Christian Science headquarters, there will be erected next year a sanatorium building for the accommodation of Christian Scientists. The assumption of the medical mind is that it will be a high-grade resort where peace and quiet may be obtained and where the influence of the Christian Science religion may be the dominating factor. Both of these are very worthy projects. It would seem at first glance that this is a very fitting memorial to the founder of the Christian Science theory, and that it will do much to keep the members of the church in closer touch.

The speculative side is, whether it will really do any good unless some competent staff passes upon the applicants for admission. In this way it may be a double-edged sword, and may do more harm than good. It is well known that Christian Science does not recognize the existence of disease, and those who are thoroughly saturated with the theory will fail to recognize the tubercular patient, the carrier of other communicable diseases, and the chronic progressive disorders that commonly fill resorts or sanatoria. It is highly probable that many acute, infectious diseases may be admitted, and it is equally probable that a definite number of deaths will occur in the sanatorium. However, if the association is broad minded and wise, it will employ an admission officer who is a trained medical man, and whose duty will be to pass upon the heterogeneous applicants. The result will be that Christian Scientists will get the sanatorium habit, just as other people do, but their argument will be that they will be living under ideal surroundings, even without the demonstration of remedies, including even the simpler forms of psychotherapy. The presumption is that these patients will take baths, will be out of doors, will walk, and will

have a calm and composed mind. The actual outcome of such a project will be watched with a good deal of interest.

The Christian Science organization has what no medical organization has, a large fund with which to erect and conduct their sanatorium. It is only occasionally here and there in the eastern states that some liberal-minded capitalist sees the economic value of the treatment of the sick. Hospitals for tubercular patients and psychopathic hospitals for mental patients have been erected through the liberal donations of millionaires, and the results have been highly gratifying. Not only is the disease here studied with great care, but the research side of the work has been very highly developed, and the knowledge which emanates from such well-ordered and well-equipped institutions is of inestimable value to the profession and the people. If the Christian Scientists can be induced to take a similar view and to have statistical tables prepared, we may learn something more of Christian Science and its benefits to humanity.

#### THE POLIOMYELITIS SITUATION

The recent epidemic which has swept over the state of Minnesota is apparently under control and subsiding very rapidly. The number of cases now in St. Paul and Minneapolis under quarantine is less than twenty. There have been occasional outcroppings in remote places that cannot be definitely traced to contact, although it is quite possible that carriers are responsible for sporadic cases. A new situation developed in Brainerd, which has proved to be of more or less consequence, and the rumor has spread that a large number of poliomyelitis cases existed in and about the city of Brainerd. Investigation, however, by the State Board of Health authorities and by local men has shown that out of six rather abrupt deaths, the majority of them were due to other diseases than poliomyelitis. On account of this subsidence of the epidemic, the sporadic case is either not recognized promptly or is not reported promptly, and this has led to some confusion and discomfort. The time has not yet gone by when poliomyelitis cases are safe, and no matter in what part of the state, every case, abortive or true, should be as promptly reported as if an epidemic existed.

Rather curious facts have developed in the East which are more or less perplexing. Visitors from the West who have been sojourning at Eastern Atlantic coast resorts have brought back

news that a number of cases have developed at the seaside, and one, a Minneapolis girl, suffered from a very severe attack. Her parents delayed their departure from the East for fear that the situation here was not satisfactory, when, suddenly and without any apparent warning and without any knowledge of contact, the child was stricken. It seems, too, that the ordinary rules of safety are not followed as closely in the East as they are in some other places, although New York has done its utmost to prevent the introduction and spread of diseases from its epidemic center. One curious instance was brought to light, in which a light-house out in the Atlantic Ocean, where the light-house keeper and his wife and three children lived, had not been in communication, except by wire, with the shore-line for more than a month. No boat had approached the light-house and no supplies had been taken in for thirty days, and yet two out of the three children came down with poliomyelitis. This raises the question, again, as to the reliability of the contact theory, although that theory has been demonstrated where epidemics occurred; and it also brings into the limelight the possibility of wind-borne contagion, and perhaps the Chinese theorists are not wide of the mark when they claim that the Bermuda high winds are responsible for endemic and epidemic diseases, and particularly poliomyelitis even in remote parts of China.

With this epidemic, of course, has arisen the usual number of remedies. Patent medicine men have been exploiting their preparations as preventives for infantile paralysis, and some have even gone so far as to claim that their remedy will cure the disease. Of course, to any thinking man this is preposterous in the extreme, and men who thus exploit their nostrum should be taken in hand by the Propaganda Department of the A. M. A. Then, too, newspapers report that the osteopaths are making claims in the paralyzed cases. To some extent their claims may be true, as they use a form of massage which is recognized as a form of treatment, at least a part of a treatment, in the paralyzed forms of the disease, but to make any extravagant claims that osteopathy, or even massage, will cure infantile cripples is wide of the mark. When we believe and know that destruction of nerve elements is responsible for the onset of the paralysis, it seems hardly probable that any one system of medicine can restore a destroyed nerve cell. The men who are really doing service are the orthopedists.

They anticipate deformities, or correct them when they exist, and their advice is wholesome and scientific; in fact, it is one measure, besides the massage, which will do something for these paralyzed cases. One case that is brought to light is that of a young girl, who, four years ago, was the victim of infantile paralysis while in England. Her deformity was quite marked, but the persistent treatment by massage and orthopedics has brought her to such a stage of improvement that she wears low shoes with scarcely an appreciable limp. This case alone shows what may be done in a moderately severe type, and it is phenomenal what may be done in the older cases in which gross and seemingly insurmountable deformities have occurred.

The one idea which every physician should bear in mind is to keep track of his cases and report them at once to the health authorities. In this way, and in this way only, can the epidemic be controlled; and with the survey which is to be made of the state, we ought to be in a better position next year to reduce the number of infantile cases. Many autopsies have been made during the past month on suspected cases, or cases diagnosed as poliomyelitis in which the diagnosis was not sustained; and this is a precautionary measure which is wise, and certainly no one can object to the careful investigation of all these suspected as well as frank cases.

#### THE PAPERS OF THE LATE DR. H. A. TOMLINSON IN BOOK FORM

An effort is being made by Dr. H. D. Valin, the pathologist and bacteriologist of the St. Peter State Hospital, to collect and publish all of the papers of the late Dr. Harry A. Tomlinson, former superintendent of the St. Peter State Hospital. The undertaking has been endorsed by the Blue Earth County Medical Society, also by a large number of Dr. Tomlinson's personal friends, and will doubtless be endorsed by the Minnesota State Medical Association, the Southern Minnesota Medical Society, and perhaps by some of the societies of specialists of which Dr. Tomlinson was a member.

The idea is to bring out a volume of Dr. Tomlinson's papers, and to distribute it among the subscribers to the work. The intent is now to issue one hundred copies at four dollars a copy. It is suggested that all medical libraries, at least in Minnesota, should buy a copy of this work.

## BOOK NOTICES

A TEXT-BOOK OF PATHOLOGY. By William G. MacCallum, M. D., Professor of Pathology in the College of Physicians and Surgeons, Columbia University, New York City. Octavo volume of 1,085 pages, with 575 original illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, \$7.50 net.

The present volume appears more like a collection of pathological narratives, as it were, or a series of lectures, imbued with the author's personality and fostering one central idea that all pathological disturbances are the result of, or reactions of, the body to injury. This is particularly illustrated in the first two hundred pages in which the principle of general pathology is most interestingly related.

Some six hundred pages are then devoted to the analysis of various types of, and diseases due to, injury and its effects. Here the classification is very unconventional, and does not follow the usual method of subdivisions. Each disease-condition is studied freely from the standpoint of a clinician, putting as much stress upon its etiological and symptomatological considerations and functional and chemical changes as upon its gross and microscopical findings. Indeed, the author makes the declaration that pathology and clinical medicine are the same thing viewed from slightly different angles.

Tumors are considered separately in the final two hundred pages. The discussions of carcinomata and teratomata are especially valuable.

Except as a reference, the book is not likely to be fully appreciated by a beginner. A clinician, on the contrary, will find it pleasant reading and invaluable reference.

The work is a distinct contribution to modern medical literature, because of its striking originality, of its very excellent illustrations, of its numerous references, given with each chapter, and of its pleasant style, making it undoubtedly one of the most interesting and readable scientific books of today.

—SKEDA.

## REPORTS OF SOCIETIES

### MINNESOTA ACADEMY OF MEDICINE

The first meeting of the year, the annual meeting of the Academy, was called to order by the president at a few minutes after eight o'clock in the parlors of the Town and Country Club.

It was moved that the one vacancy in St. Paul be filled at this time. Ballots were prepared, and, inasmuch as there was but one nominee, the members were instructed to vote Yes or No on the name of Dr. Richards. No adverse votes were cast, and his election, pending the preparation and acceptance of a satisfactory thesis, was declared.

While the balloting was going on, opportunity



was given for the report of cases. Several were made by Drs. Ramsey, Bacon, and Weston. Later on, while balloting for other officers, the subject of infantile paralysis was discussed by Drs. Ramsey, Jones, Staples, Ulrich, Christison, and Hamilton.

The only report to be made was that of the Secretary-Treasurer, which was approved and placed on file.

The following officers were elected for the year ensuing: President, Dr. Alex R. Colvin; vice-president, Dr. Grosvenor Cross; secretary-treasurer, Dr. Fred E. Leavitt; members of the Executive Committee, Drs. Hamilton, Carlaw, and Dennis.

Following the election, the new president took the chair while the retiring chairman, Dr. Head, read his address. (Published in our issue of October 1.)

Names proposed for membership: Dr. Arthur C. Strachauer, Minneapolis, with Drs. Moore, Hamilton, and Head as sponsors; Dr. E. L. Baker, Minneapolis, with Drs. Head, Adair, and Hare as sponsors; Dr. E. J. Huenekens, Minneapolis, with Drs. Adair, Hamilton, and Hare as sponsors; Dr. Fred. H. Poppe, Minneapolis, with Drs. Mann, Adair, and Hare as sponsors.

Thirty-three members and one visitor were in attendance.

FRED E. LEAVITT, M. D., Secretary.

## NEWS ITEMS

Dr. A. J. Tilton has moved from Winger to Danube.

Dr. O. N. Meland, of Dawson, has located at Detroit.

Dr. G. R. Melzer, of Morris, has moved to Hoffman.

Dr. Arthur Bremken has opened a hospital in Pine River.

Dr. E. V. Smith, of Rochester, is now located at Indianapolis, Ind.

Dr. M. A. Desmond, of Akeley, has sold his practice to Dr. C. J. Goodheart.

Dr. B. D. Hart, of Round Lake, has disposed of his practice and moved to Chicago.

Dr. E. L. Crispin, formerly of the Mayo Staff at Rochester, has moved to Ocean Park, Cal.

Dr. R. D. Benson, of Hannaford, N. D., was married September 26 to Miss Eleanor Dix, of Fargo.

Dr. D. R. Young, of London, Ont., has become associated with Dr. W. C. Fawcett, of Starkweather, N. D.

Plans have been announced for the erection of a \$50,000 nurses' home in connection with Asbury Hospital of Minneapolis.

A visiting nurse for the county schools of Ramsey County is to be employed. The school districts will pay her salary.

Dr. E. M. Carr, a resident of Pipestone for over thirty-eight years, died at his home on September 26 at the age of 80.

Dr. A. A. Kahala, of Erskine, has purchased the practice of Dr. Wilson Randolph, of Crookston, the latter moving to Detroit, Mich.

Dr. Theodor Bratrud, a resident of Warren since 1898 and head of the Warren Hospital since its organization, has moved to Grand Forks, N. D.

Dr. Robert Guilmette, of Minneapolis, has gone to Winnipeg and from there he will be sent to England as a member of the Royal Army Medical Corps.

Dr. A. G. Anderson, of Minneapolis, has resigned as captain of the First Minnesota Medical Corps stationed at Llano Grande, Texas, and has returned home.

Dr. W. H. Hengstler has sold his practice at Osakis to Emil Haberman, of Minneapolis, and, after taking postgraduate work in New York, will move to Portland, Oregon.

Dr. Walter M. Beck, of Clarkfield, died last week in a Minneapolis hospital as the result of a fracture of the skull caused in an automobile accident. Dr. Beck was 54 years of age.

Dr. S. J. Froshaug, of Benson, died at his home on October 1 after an illness of only a few hours. Death was due to peritonitis. Dr. Froshaug was a resident of Benson for a number of years, and was a member of the State Senate in 1910 and 1914.

The Nicollet-Le Sueur County Society held its annual meeting at St. Peter last month. Dr. H. D. Valin, of the State Hospital, read a paper on the antitoxin treatment of infantile paralysis, and Dr. H. B. Aitkens, of Le Sueur Center, read one on "Obstetrics."

The Seventh District Society of South Dakota met last week at Canton. Papers were read by Dr. E. E. Gage, of Sioux Falls, on "The Early Diagnosis of Tuberculosis"; by Dr. R. G. Stevens, of Sioux Falls, on "Tuberculin Treatment";

and by Dr. W. W. Gore, of Dell Rapids, on "Surgical Tuberculosis."

The Surgeon-General of the United States announces that an examination for candidates for appointment as first lieutenants in the Army Medical Corps will be held in January, 1917, at the usual points. There are now two hundred and twenty-eight vacancies in the Corps. Details can be obtained from the Surgeon-General.

December 3 to 10 has been designated as Tuberculosis Week in the United States. The week is to be made one for special effort to enlist every possible organization for antituberculosis work. It is expected that 200,000 organizations will take part in it. Churches, clubs, labor organizations, etc., are uniting in this great crusade.

The Mitchell District Society of South Dakota held its regular meeting last month at Mitchell, with the largest attendance in the Society's history. Dr. J. F. Percy, of Galesburg, Ill., gave an illustrated lecture; and the wives and daughters of the out-of-town physicians were handsomely entertained at the home of Dr. B. A. Bobb.

The Minnesota State Medical Association is in session in Minneapolis as we go to press. The House of Delegates had a lively discussion at its Wednesday meeting on the subject of medical defense. The cost of suits for the past year exceeded \$3,000. The discussion will be continued on Friday. The indications are that the defense plan will not be changed or abolished.

Governor Burnquist of Minnesota has named the following delegates to the annual meeting of the Association for the Study and Prevention of Infant Mortality, to meet October 19-21 at Milwaukee: Dr. H. M. Bracken, of the State Board of Health; Drs. W. R. Ramsey and J. T. Christison, of St. Paul; and Drs. J. P. Sedgwick and Frederick W. Schlutz, of Minneapolis.

Dr. J. W. Cox, of the College of Medicine of the University of North Dakota, has been appointed acting director of the State Public Health Laboratory to fill the place left vacant by the resignation of Dr. L. D. Bristol. Dr. James Grassick, of Grand Forks, has been appointed University physician. He will give consultation and health advice to all University students free of charge.

In the discussion of Dr. Wright's paper in our last issue, Dr. A. E. Johnson, of Watertown, was credited with remarks made by Dr. M. C. Johnston, of Aberdeen. Reporters cannot be

expected to know every physician in a large association; and until the names of speakers are distinctly given by themselves or the presiding officer, such mistakes, annoying to the speaker and to the editor, will occur, and will occur often.

It is reported that students in the Medical School of the University of Minnesota feel the burden of the increased cost of text-books to such an extent that some of them are changing their courses of study to avoid buying new books.

The Surgical Association of the Rock Island Lines met in St. Paul last month. The attendance was large and the papers excellent. The banquet that followed the meeting was very largely attended.

#### PHYSICIAN WANTED

Fine location; big territory; thriving town of 400 in Red River Valley in Minnesota. Address 401, care of this office.

#### PART OF MINNEAPOLIS OFFICE FOR RENT

I want a doctor to share my office in a suite of rooms in a modern office building in Minneapolis. Address 403, care of this office.

#### AN EXCELLENT OPENING FOR A DOCTOR

A doctor is wanted in a growing village in West Central Minnesota, where crop failures are unknown. For further information, address 404, care of this office.

#### PRACTICE FOR SALE

I offer for sale my \$4,000 practice in a city of 1,100 in eastern North Dakota; good large territory. Will sacrifice for quick sale. Address 399, care of this office.

#### PARTNER WANTED

A physician to buy half interest in a country practice in a small town. Must be Protestant, and a German or an American. For information, address 396, care of this office.

#### APPARATUS FOR SALE

A 12-inch x-ray coil, in first-class condition, with rheostat, and electrolytic interrupter and Scheidel-Western Rectifier if desired. Price, \$75.00 cash. Address 413, care of this office.

#### EXPERT VALUATION

Physicians who desire the services of a man experienced in the valuation of office furniture, instruments, surgical, x-ray, and other electrical outfits, libraries, etc., may address 400, care of this office.

#### ASSISTANT WANTED

I wish an assistant in my practice in a good mining town. Will pay \$125 per month for the first six months, and \$150 after that. Give age, experience, and references. Address 406, care of this office.

## POSITION WANTED

Wanted, position as office assistant in a physician's or dentist's office by a refined, neat and experienced young woman; am capable, systematic and orderly. References exchanged, state hours and salary. Address 410, care of this office.

## SURGEON WANTED

A surgeon is wanted at a good salary to do the operating in an established hospital in A No. 1 farming community in Minnesota. Must be competent to do laboratory work. Must speak a Scandinavian language, Swedish preferred. Address 405, care of this office.

## PRACTICE WANTED

Wanted, a practice, partnership, or assistantship. I am a graduate of the Minnesota Medical School, with one year internship, one year Assistant Police Surgeon in Minneapolis, and a year and a half in general practice; not afraid to work; surgery preferred. Address 409, care of this office.

## POSITION WANTED BY A STENOGRAPHER AND BOOKKEEPER

We have registered with us an exceptionally bright lady stenographer and bookkeeper. Experience, 5 years law, 2½ years at Battle Creek Sanitarium, 1 year Mayo Clinic. Address James F. Eells, Business Men's Efficiency Bureau, 902 Plymouth Bldg., Minneapolis, Minn.

## PRIVATE HOSPITAL FOR SALE

In the best residence district of a city of twenty thousand; three railroads and interurban line. Solid concrete and white-brick four-story building, modern throughout, established ten years, and doing good business; room for seventy patients. Reasons for selling: sickness of doctor and owner. Address 415, care of this office.

## LOCUM TENENCY WANTED

Beginning Jan. 15th, for any length of time, not to exceed six months, by a regular physician: thirty-one years old; 1915 graduate of A+ school. Will have completed a twelve-months' internship at a large county hospital Dec. 10th. Can give best of reference. Can speak French. Address 418, care of this office.

## POSITON WANTED

Wanted—Assistantship to surgeon, general practitioner, corporation, or hospital, by physician experienced in all lines of general work. Special training in obstetrics, accident surgery, and in giving anesthetics, good radiographer. Clean habits, will take locum tenency. Best of references. Can come immediately. Address 417, care of this office.

## PRACTICE FOR SALE

I wish to sell my practice in a Central Minnesota town of 2,400. House, lot, car, garage, etc., optional. This is a German community, well settled, with a well-equipped hospital, and collections of 100 per cent. I have had my practice for over thirty years, but must go west because of illness in my family. Address 407, care of this office.

## PRACTICE FOR SALE

A \$10,000 practice for sale at office invoice if taken at once. No real estate. Located in a live Central Minnesota town of 1,200. All modern improvements, two railroads; nationality, Scandinavian and German. Collections O.K. Am leaving to take up an unexcelled opportunity for special work. Address 408, care of this office.

## FOR SALE

A desirable, attractive 10-room home, 1½ acres of land on Crystal Bay, Lake Minnetonka, with fine shore, large garage and barn, and auxiliary cottage, and gas and water plant. Finely located. A large and desirable medical practice goes with it. Only object of selling is poor health. A desirable place and location for the right man. Address 414, care of this office.

## DAKOTA PRACTICE FOR SALE

I offer for sale my practice in an eastern South Dakota town of 1,000 population, with lights, water, sewers, and good schools. Mixed population. One competitor, aged 55. Price, \$500, the cost of equipment; no bonus. Best location in the state. South Dakota reciprocates with North Dakota and Minnesota. Large territory. I am leaving the state. Address 412, care of this office.

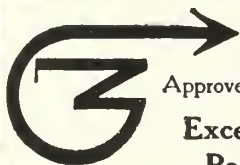
PRACTICE AND HOSPITAL FOR SALE  
IN NORTH DAKOTA

Completely equipped 10-bed hospital and office, including x-ray apparatus, with practice which ran \$9,000 this last year. Large territory; good collections; Methodist and Presbyterian churches; good high school; fine people. A fine opening for a good live young man who can do surgery. Reason for selling: I am going to specialize. Address 402, care of this office.

## DOCTOR

Doctor: If you want practical postgraduate work during the fine season in the delightful city, write for particulars. Thirtieth annual session opens September 25, 1916, and closes June 9, 1917. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.





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One of the New and Non-official remedies.  
Accepted by the Council on Pharmacy and  
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Syringe containing 10 injections \$1.50. Credit  
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The classical test is made. The various modi-  
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Sterile container with needle and complete in-  
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Slides of sections sent upon request.

### Autogenous Vaccines - \$5.00

<b>Pyorrhea</b>	<b>Chronic Bronchitis</b>
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<b>Throat Infections</b>	<b>Skin Infections</b>
<b>Bladder and Urethral Infections</b>	<b>Hay Fever</b>

The *exciting* organism is identified and isolated.  
Cultures are made both aerobically and anaerobi-  
cally. The vaccine is furnished in a single half-  
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## PUBLISHER'S DEPARTMENT

### PRIVATE MATERNITY HOME

The maternity home conducted by Mrs. J. W. Morey, at 2014 26th Ave. So., Minneapolis, is recognized by the Health Department of the City of Minneapolis, which has charge of all such institutions, as admirably conducted, and the authorities look upon Mrs. Morey as a woman of high character and efficiency.

### ASPIRIN—PURE AND IMPURE

The amount of spurious aspirin on the market since the beginning of the European war, and the amount that will follow the expiration of the trade-mark right next year, can hardly be estimated, but that it is very great now, and will be even greater, every physician knows.

The "Bayer Tablets of Aspirin" (5 grs. each) signify, and always will signify, absolute purity; and physicians who want to avoid substitutions should note well this fact.

### THE FRANK S. BETZ COMPANY

The advertising pages of a medical journal furnish a lot of interesting and valuable information, and perhaps not more so at any point than in the illustrated announcements of new instruments. The Betz Company is a mammoth concern that makes many new announcements. The illustrated announcement on another page tells of "three late instruments of great merit," and they are just what very many general physicians, as well as specialists, want. It is worth while to watch all such announcements made by "Betz."

### HALVERSON ELECTRIC STERILIZER

The Halverson electric sterilizers have long been known for their efficiency. The company has put upon the market its last model for physicians, for which it claims several points of superiority. The two red signal lights, showing the degrees of heat from low to extreme.

This sterilizer has a protecting plug, a safety fuse screw, an automatic lifting and removable tray, rubber enameled handles, and rubber-tipped legs. This sterilizer cannot be burned out. The prices range from \$25 to \$37.50.

### MEYER INTERRUPTLESS APPARATUS

The Wm. Meyer Company, of Chicago, make a line of alternating and direct current apparatus ranging in price from \$25 to \$1,400, that is at once simple and complete, thus meeting all the wants of the individual or the hospital.

The descriptive circular of their apparatus sets forth, in clear and understandable language, the points of excellence in their apparatus, and gives an x-ray picture of some of the "bunk" use to sell inferior apparatus. A proper amount of such *unpleasant* information is absolutely essential to every prospective purchaser of electrical apparatus if he expects to purchase wisely. The Meyer circular will be found interesting and helpfully instructive by every one using or planning to use x-ray apparatus.

The Meyer apparatus is sold in the Northwest by the

Standard Supply Company, of Minneapolis, at whose show-rooms it can be seen and studied.

### THE SEQUELÆ OF LA GRIPPE

Among all of the various acute and exhausting illnesses that afflict mankind, there is none that so generally results in distinct prostration as epidemic influenza, or la grippe. Even the grippal infections which are uncomplicated or unaccompanied by serious organic changes are more than apt to leave the patient in a thoroughly devitalized condition after the acute febrile symptoms have subsided. It is for this reason that the treatment of la grippe convalescence is of special importance. The anemic, debilitated, depressed patient requires a systemic "booster" that will not only stimulate but revivify and reconstruct. It is distinctly wise, in such cases, to commence vigorous tonic treatment as early as possible, preferably by means of Pepto-Mangan (Gude), the hemic builder and general reconstituent. This standard hematinic increases the vital elements of the circulating blood and, by increasing the appetite and improving the absorptive and assimilative functions, quickly restores both hemic and general vitality.

### PREPAREDNESS

Messrs. Reed & Carnrick have issued, under the above title, a brochure on Peptenzyme, which, they claim, will make the dyspeptic's stomach fit to travel on, and give him the strength that makes a strong army.

The booklet contains illustrations of the modern means of warfare, such as the dirigible, the armored car, the dreadnaught, etc., with interesting statistics. But all are in vain unless the stomachs of the men are "fit." And, too, all effort on the part of business is practically for naught unless the stomach is in good working order.

Demonstrations are given in the booklet to show what Peptenzyme will do in the test-tube, and all such tests can be repeated for verification in any physician's office.

The booklet is well worth reading; and the claims of the manufacturers should be verified by the simple tests that prove things and give confidence to the practitioner.

### THE WINKLEY ARTIFICIAL LIMB CO. AND MR. LOWELL E. JEPSON

The Winkley Artificial Limb Co. is an "institution" known and respected for the excellence of its product, which is used almost exclusively upon the direction (prescription) of physicians and surgeons.

This company has been made what it is by Mr. Lowell E. Jepson, who proved himself a true friend of physicians for many years in his strictly business relations with them. He proved himself more directly a friend of the medical profession as a Senator of the State of Minnesota, when he stood for and helped to enact many bills that physicians proposed for the good of the public. In the advocacy of such bills he exhibited business, intellectual, and moral qualities rare in our legislative halls. He gained the success due to such qualities.

Mr. Jepson is now a candidate for Congress from a combined urban (Minneapolis) and rural district. He will have the opposition that naturally appears where high attainments commend a man; he may need the help which the medical profession of this city and pos-

sibly of other parts of the state can give him. The best and highest public interests are served when a man helps along such a cause. Mr. Jepson is entitled to the hearty support of the medical profession, as well as to the support of every man who has at heart real public interests.

#### LUBRICATION—WHAT IT MEANS

Ask any doctor, point blank, the antidote for opium, or arsenic, or strychnine, and his answer would be prompt and practical. But ask him the antidote for physiological friction, and he might hesitate before the word *lubrication* came to mind. Nevertheless, lubrication is a word that should suggest much to the doctor, for he needs lubrication—and not only lubrication, but perfect lubrication—every time he uses the catheter, sound, speculum, scope, the examining finger, or any instrument of penetration.

Hence friction's antidote should suggest K-Y Lubricating Jelly. Nay more; it should persuade or compel him to have at hand, in his bag and on the shelf, a tube of "K-Y," which is insurance against trouble or annoyance. K-Y Lubricating Jelly is a perfect lubricant. It is greaseless and water-soluble, which means that it is efficient and convenient. Its essential property is slipperiness, and it is not sticky; neither does it stain the skin or soil the clothing. It is emollient and protective. It is transparent and economical to use.

Consequently it is not only of service for lubricating instruments of penetration, but it serves as an effective dressing or application to burns and scalds. When applied early, taking care to cover all of the affected surface, it often prevents blistering. It relieves the soreness of chafes and promotes healing.

It soothes pruritus even of the most severe kind, in many cases, and is useful in dermatitis, urticaria, eczema, irritable ulcers, etc.

One especially valuable use for K-Y Lubricating Jelly is to anoint the skin in scarletina, measles, chicken-pox, etc. It protects, allays irritation, and can be used without soiling or staining the clothing of the patient. It also keeps the surgeon's hands supple, protects against bichloride rash, and "protects the feel."

#### BATTLE CREEK'S GOLDEN JUBILEE

A great institution of any character whatever is not built up from nothing and with nothing, except it be founded upon a great idea. The Battle Creek Sanitarium was founded by a small body of Christian men and women just fifty years ago, and had for its endorsement and corner-stone an idea. It is now the largest sanitarium in America, and has been aptly called a "University of Health." Its "Extension Work" has reached every hamlet of America, and most parts of the world outside of America.

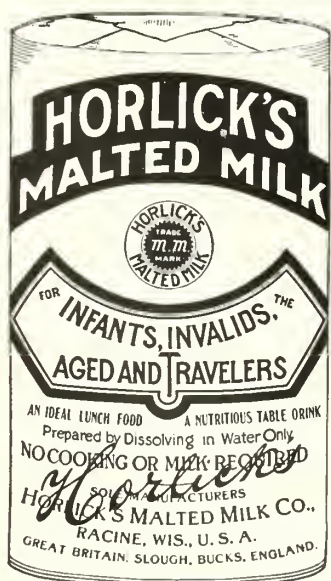
Its genius is Dr. J. H. Kellogg, who began his great work with the sanitarium in 1876. Dr. Kellogg is a Fellow of the American College of Surgeons, as are also the two surgeons on his staff.

The Golden Jubilee was celebrated on October 3-5 with interesting exercises in which state officials of Michigan and many other distinguished guests took part.

Dr. Kellogg is the friend of all medical men, and gives them a hearty welcome when they go to Battle Creek for rest or for information about his work.

The JOURNAL-LANCET extends greetings to Dr. Kellogg and his entire staff.

## THIS IS THE PACKAGE!



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# THE JOURNAL- LANCET

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and Official Organ of the  
North Dakota and South Dakota State Medical Associations

PUBLISHED TWICE A MONTH

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MINNEAPOLIS, NOVEMBER 1, 1916

No. 21

## A JOINT DISCUSSION ON ANOTHER STEP IN THE REORGANIZATION OF THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA

Following the discussion in the Hennepin County Society, we print (1) the Preliminary Report of the Committee of the Civic and Commerce Association; (2) the Questionnaire sent by the committee to two hundred prominent physicians, (3) the resolution passed by the Minnesota State Medical Association, and (4) the resolution passed by the Medical Alumni Association of the University.

In the discussion of the subject, two terms are used which may not be familiar to everyone, and therefore we venture to define such terms:

A *per-diem* patient is one who pays hospital charges, but does not pay for the services of the hospital physicians or surgeons.

A *pay* patient is one who pays for all services rendered, both by the hospital and the hospital physician or surgeon attending him.

As used in connection with the plan under discussion, the hospital charges to be made to *per-diem* patients seems to be the *actual cost* of such hospital service; but nothing seems to be said about how the hospital charges for *pay* patients will be determined.

We treat the new plan and the discussion editorially in this issue.—THE EDITOR.

A special meeting of the Hennepin County Medical Society was held on October 4.

President Cross in the chair and 130 present.

PRESIDENT CROSS: This special meeting has been called to consider the subject of the preliminary report of the Committee on Benevolent Associations of the Minneapolis Civic and Commerce Association "regarding a movement to secure a larger and more varied hospital clinic for medical students at the University of Minnesota."

This meeting comes about through a partial discussion of the subject, which we held last Monday night, when it was found that no one was well enough informed to discuss it fully; and therefore we adjourned until to-night.

I asked the Committee on Benevolent Associations and some others who may add to the information we have to meet with us. I had expected first to call on Mr. E. S. Slater, the Chairman of the Committee, for a presentation of the subject, but Mr. Slater is not present. Mr. Dole, the Chairman of the sub-committee on University Hospital Extension, is here, and I will ask Mr. Dole if he will tell us, briefly, of the committee's attitude on this subject before we go on with the rest of the discussion.

MR. GEO. A. DOLE: The committee thought it wise to put into writing what they have to say.

To the Members of the Hennepin County Medical Society, Minneapolis.

Gentlemen: The question of securing larger and more varied hospital clinics for students in the Medical School of the University of Minnesota was first formally brought to the attention of the Minneapolis Civic and Commerce Association on February 28, 1916. On that date, at the request of Dr. Vincent, certain members of the Association met with representatives of the University. There were present Dr. Vincent, Dr. Moore, Dr. Beard, Dr. Lyon, and Dr. White, representing the University, and Messrs. Couper, Strong, Shearer, and Miss Rockwood, representing the Association. A statement, prepared by the University, covering the needs of the Medical School, was presented; and the Civic and Commerce Association was asked to make an independent investigation prior to endorsing the plan to secure larger facilities.

Shortly after this meeting President Couper referred the matter to the Committee on Benevolent Associations for investigation and report. This committee in turn appointed from its membership a sub-

committee, consisting of Messrs. Dole, Bucknam, and Gregg, to make a detailed study of the question involved. The sub-committee believed that the welfare of so important a department of the University as the Medical School was so inseparably bound up with the welfare, not merely of Minneapolis, but of the entire state and the Northwest, that they made careful investigation, in co-operation with representatives of the Medical School, through correspondence with medical educators, and by suggestions and visits throughout the state, to see if some reasonable plan might be evolved by which the Medical School might receive the best facilities possible without unduly handicapping any other department of the University, or any other group engaged in public or semi-public service. After the committee had prepared this report, they thought best to submit it to physicians in the belief that, if improvement could be made, their experience would enable them to suggest it. The committee had a preliminary report printed and sent to something over 300 physicians in this city who were found in the American Medical Association. The committee hopes to obtain the opinion of a large number of these physicians, and appreciates the opportunity you have offered us here tonight of listening to any suggestions that may be offered in connection with the discussion here. The committee feels that if the Civic and Commerce Association can be of any assistance to enable the University to better meet the demands made upon it, without any injury to any other group, that we should lend our assistance.

As no action has been taken by the committee, we welcome the opportunity to be present and listen to the discussion and gain any further light we may be able to get. Our only interest is a sincere desire on the part of the committee to assist, if possible, in working out a practical plan whereby students of the Medical Department of the University may secure any needed additional educational advantages.

**PRESIDENT CROSS:** We have heard the statement of the work of the sub-committee on University Hospital Extension up to this time. I have taken the liberty, as chairman, of asking Dr. Rowntree to go over, briefly, an outline of his reasons for the proposed hospital extension. Dr. Rowntree made the request of me that, if he came over, he be permitted to retire after he had made his remarks, and that was granted as far as I have power to do it.

**DR. ROWNTREE:** I accepted the invitation of your president with a great deal of pleasure, to explain, first, the University conditions in the Medical School as I see them at present; and, secondly, the needs of the University as I see them at present.

In starting I would like to say that I accepted the Chair of Medicine in this University because of the faith that I have in the future of this University, and not because of conditions which exist here at present. I naturally consulted a great many friends before coming to Minneapolis, and thought it might be interesting to you, as the profession of Minneapolis, to know something of what the profession elsewhere thought of this school.

In the first place, this school is recognized as a great teaching center. Secondly, it is recognized as having

done, and up to the present time, is doing, a great pioneer work in Minnesota. Thirdly, it is considered not to be as productive a school, scientifically, as it could be or should be. Gleaning these ideas from friends, I came and investigated conditions and found these things: first, that the spirit was right, here; secondly, that the time was ripe for great development; thirdly, I found the explanation of their criticism that it was non-productive. It consisted in this: too few workers to carry on so great a work; secondly, lack of facilities, particularly on the clinical side, for making a great center of medicine in Minneapolis. Returning to Baltimore I discussed this with my friends. Some of my friends have had experience in medicine in the Middle West, principally in St. Louis. They said, "If St. Louis, don't go." I asked about Minneapolis, and they said they believed that the profession of Minnesota had a much broader interest in medical education; that the people of Minnesota had a great and deep interest in higher education, and they believed that there would be much greater developments in Minneapolis and in Minnesota in medicine in the future than anywhere else in the great West.

I came to Minneapolis then, first, because I believed in the future of the University; secondly, because I believed it is possible, and do now, to make Minneapolis the great medical center, not only of the state of Minnesota, but of the whole Northwest.

How can these things be accomplished? We have certain needs. We must have more workers. That is the first essential. We need to investigate. How are we going to get them? Have we them here at hand? Obviously not. We can get a great deal of assistance here, but have to go outside. Where can we turn? I have invited two men to come to the University on practically the same basis that I have come, since I came here. Their names are quite familiar,—Dr. Allen and Dr. Dochez. Work such as they have done brings with it great opportunities everywhere,—great financial opportunities if they care to avail themselves of financial opportunities. What can we offer? Can we turn to men such as these and say, "Come out and help us build a medical school; we will pay \$2,500 a year?"

We have not much in the way of clinical facilities. The hospital is small. We cannot get workers unless we have something to offer. It is essential in order that we have workers that we have clinical development.

The third thing that we need for the development of a great medical school and a great medical center in Minneapolis, is the co-operation and participation of the profession of Minneapolis and the state. We need your assistance in the matter in order to make a great school. What can I do alone after coming here to make a medical center? I can only do my small part, and that only in relation to one field of medicine. We have to have other men who will come with the same ideas. In coming here we have had one idea, that is, the development of a great medical center. That means more men, and we have to have some basis for bringing those men. We have to offer them something that is worth while in order to get them to participate.

The next question is, Can a man be a leader in his work if he does not participate to some slight extent in actual practice of medicine? Can he train men, as



we attempt to do in the Graduate School, for advanced work in medicine if he has lost touch with the profession? It has been so in all other branches. Men who lose actual touch cannot be leaders in professions, nor properly develop the men who come to them for development. Then how can we accomplish these things? It is absolutely essential, in order to have a great school and to have Minneapolis a great medical center, that we have advantages. We have suggested a certain plan, and this plan will be unfolded to you shortly. This plan makes possible these hopes which we have spoken of for you and for us. It gives intelligent co-operation in research work. I might say that all my earlier work in renal functions was carried on with private patients of Dr. Young. It has been my experience that the higher the social scale and the more intelligent the people from whom one draws material, the more co-operative they are, and the better results one can get. It gives us opportunity to train not only our graduate students, but our undergraduate students, in dealing, not only with one class of people, but with all classes,—conditions which they must meet when they go out to practice later in life.

We need development in the University. There is no question about that. We cannot take a leading place in medicine without development. Do you need it in the profession? Can't you come in with us, and let us all develop together? We ought to have an institution where you can send your poor patients. If you have patients from the middle classes whom you do not care to continue to treat, we can take these patients and help you in the diagnosis, if you wish us to. We charge nothing except the per capita cost for a patient in the hospital.

This is where we stand. In the institution there is a conviction of the need of change and of development, and we want you to participate in that. We do not want the repetition of conditions that exist in St. Louis. Five years ago St. Louis promised to become a great medical center. The University and the profession split, and they never have gotten anywhere. We do not want this condition here. Let us all get together with this as the object,—a great medical school, a leading medical school, a productive medical school, and Minneapolis the center of medicine for the great Northwest.

PRESIDENT CROSS: I am sure we are indebted to Dr. Rowntree for his statement of his views.

Mr. Slater has come in. Mr. Slater, will you tell us what you will of the work of your committee? Mr. Dole has already outlined this.

MR. E. S. SLATER: If Mr. Dole has presented the matter there is nothing I could add to it, and I feel that it is rather like turning aside from the real interest of the meeting for me to say anything, since I cannot speak with any wide knowledge or definitely formed opinions or conclusions at which I have arrived. The committee of which I am chairman has taken no action and has not received the final report of the sub-committee; and until it does I can make no presentation of the point of view of the committee which I represent. I can only say that we are learners, and if we can give any assistance to the University or the community in broadening the scope of the University, we will gladly do so, but until I feel

that we can do so I feel that I ought not to be called upon, perhaps, to state conclusions before we have reached all the facts which you may be able to give us and which we may hope to get in fuller measure tonight by your own discussion.

DR. S. M. WHITE: (Speaking for a committee of the Medical Faculty.) The need of extension to put the University in possession of adequate facilities is urgent. The two hundred beds, the number in the Elliott Hospital, allow only a minimum of beds in medicine, surgery, and gynecology and obstetrics, and do not provide in any adequate way for special branches. The municipal hospitals cannot serve the larger and more important needs of medical education for the following reasons:

Intensive investigation is impossible because the services of the staff are voluntary. Internes and nurses cannot answer the demands of systematic observation. Student clerks cannot enter the wards for case-writing and record. Salaried teachers or employees of the University cannot be enlisted on these staffs. No adequate equipment for scientific research exists. Laboratories for diagnosis alone are provided. The laboratories of the fundamental sciences in medicine are not available. Because of limited facilities in the Medical School, both in the hospital and laboratories, it has been found necessary to limit to eighty the number of students registering in each class. This limit is not decided by the needs of Minnesota and the Northwest, but by the physical deficiencies in the school itself. We need extension for purposes of graduate teaching and research; and the exercise of these functions is a most important thing.

The plan for three-year fellowships in various branches in medicine originated here, and we have already seen other institutions lead us in carrying it out. The character of graduate teaching here is going to determine the kind of medicine and practice in the Northwest. Good as it is, we are not satisfied. We want it to be, not as good as elsewhere, but better than anywhere else. The Medical School has already won an enviable reputation as a teaching institution, but has not been sufficiently productive. The reasons for this should now be done away with, and we are urging the necessary steps. A large private practice is incompatible with intensive research as it is carried out today, and we should be able to invite here the best men in the various branches of medicine to be found in this country. Inadequate facilities place a bar to the acceptance of such invitations by such men.

Regarding the plan for the acceptance of per-diem patients in the University Hospital, our thought is this:

Legislative support has been and will continue to be inadequate. The expense is too great and opposition from other University departments and from the state at large too effective to allow the necessary extension along the lines of a wholly free clinic. Many poor but self-respecting patients would be given an opportunity to secure hospital care for a fixed charge, and would be glad to pay for such care by submitting themselves for teaching and research, and this type of patient is much more intelligent and capable of intelligent co-operation in the study of a case or other problem, than is the average free patient. The per-diem patient is not an asset either to the semi-private



hospital or the practising physician, and he cannot be so effective in advancing our knowledge of medicine in a private hospital as in the University Hospital, where there is teaching and research. The per-diem plan provides a means of securing the needed extension without continuous expense to the State and without the uncertainties of legislative support, and removes a grievous burden from the University body.

The problem of full-time teachers and investigators has been given long study. The plan proposed has secured the united support of the University, as well as commendation from medical educators elsewhere in this country. The problem is twofold: first, to secure the highest type of men available from any possible source; secondly, to prevent any possible abuse of the position and to secure the whole time and the whole-hearted service of such men for the University and through it for the State. In the first place the highest-paid men in the clinical work cannot be secured for the maximum salary now given by the University, nor can the University pay higher salaries to such men without upsetting the salary schedule of the whole institution. To limit ourselves to the men who can be secured for the maximum salary now available, would be to defeat the very purpose of the plan.

Second, to prevent abuse of the position and to secure whole-time service. We believe the plan has been safeguarded at every point. We have seen men using the prestige of high positions to secure large and very lucrative practices, but we believe that the plan proposed will absolutely prevent that here. In the first place, the limitation of the number of beds and the limitation of the beds to the University Campus is the most effective device. I know of one professor in a medical school far from here who keeps seventy beds full with private patients in his clinic and who recently added others in a hospital some distance from the clinic. I believe such an arrangement is destructive to the highest purposes and to the effectiveness of such a man as investigator and teacher. Such a situation would be impossible with our plan, providing, as it does, a limit of not over fifteen per cent of the total capacity for private patients. The number of beds available for any one man would not be over six or eight, and, if the total capacity were 550, as hoped, the total number of beds available for from ten to twenty men, would not be over eighty-three. Eighty-three private beds added to the hospital capacity of the Twin Cities would not cause much excitement among hospital superintendents. We believe that the advantages to be secured to the medical profession and to the people of the Northwest, would give a large return for any disadvantages suffered by anyone.

A further proposal acceptable to everyone concerned, we believe, is that all fees for whole-time men be collected in a central office, and that an accounting be made at stated intervals to the University authorities. This would provide a prompt check against abuse. With the purpose as stated, the administration of the plan in the hands of the Regents cannot give rise to abuse or special privilege. The principle of consolidation of work in all departments of this University, as well as practically all other large universities, has been accepted, not only in endowed, but in state, institutions.

A valid reason for the opposition to the recently proposed Mayo affiliation was that affiliation might tend to check growth of the parent institution. The most effective way to make such an outcome impossible is to put the Medical School in such a position that nothing can overshadow it. By this means alone, in our estimation, can a medical center of the Northwest be established in the Twin Cities, headed, as it must be, by the University. Medicine in the Twin Cities and Minnesota and the Northwest can rise no higher than its source. The logical source is the Medical School of the University of Minnesota. The special committee on hospital extension, graduate work, and research, representing the hospital committee of the Faculty of the Medical School, desires to promote a move that will put medicine on a higher plane than it has heretofore occupied, and that will put the Medical School where it belongs, in the forefront of medical progress. For myself, though believing that the plan prevents rather than introduces competition, I welcome any competition that puts me more on my mettle, that results in better service in medicine for the people of the Twin Cities and Minnesota and the Northwest.

PRESIDENT CROSS: I have taken the liberty, so far, of calling on those who could be logically expected to present the subject as they have. There are others whose opportunities and duties have given them a point of view that should be heard. I want to ask Dr. Jones if he will open the general discussion.

DR. W. A. JONES: In a discussion of this kind I feel that I am treading on rather dangerous territory if I am called upon to offer some criticism against the plan proposed by the Civic and Commerce Association and also by the University. Some time ago I secured a copy of the questionnaire that was sent out by the Civic and Commerce Association not having received one myself. I took the liberty of answering it through *THE JOURNAL-LANCET*, the journal of the Minnesota State Association. This will perhaps serve as a basis for future discussion.

The first question asked is: Do you favor the enlargement of the clinical facilities in connection with the Medical School of the State University? I think every man here and every man who belongs to this Society will answer unhesitatingly, Yes.

Second, Do you favor the completion of the proposed hospital system? To this there can be but one answer, Yes.

Third, Do you favor making an effort to secure gifts for new buildings from private individuals? Certainly. The only hospital on the Campus is from a private individual.

Fourth, Do you favor taking per-diem patients to meet the expense of maintaining new buildings? This particular question no one can answer very accurately except to say that the cost of maintenance differs from year to year. The cost ten years ago of taking care of one patient was a small figure. The cost today has increased very materially. Consequently, the answer to this question would be No, and is based upon the assumption that the State, in establishing and maintaining the University in its various departments, is bound by the moral obligation to support it in all of its departments and to maintain the expense of

its departments by sufficient appropriations. The insane, feeble-minded, and many other schools and hospitals all now under the control of the State, definitely under control of the State Board of Control, come within this category. They are all supported and maintained by the State. I think there is no instance in this state where a private individual has built a pavilion for a state institution. Some years ago there was a great cry among the people, so we are told, for the hospitals for insane to take pay patients. Some patients were received under a new legislative act and almost at once the unfortunate action of the legislature began to be evident. It produced discord among the patients and among the hospital employees and such differences of opinion among superintendents that within two years the whole scheme was abandoned as impractical and impossible to carry out. The poor suffered because a few paid in a small amount of money,—nothing like what they would have to pay at this time. There is at present no state institution in Minnesota that receives pay patients. And there should be none at any time or any place, as long as the great State of Minnesota with its wealth of resources can take care of its dependents.

Fifth, Do you favor the employment of full-time teachers whose meager salaries may be supplemented by fees from a strictly limited number of patients who may be referred to them for investigation, diagnosis, or treatment on the University Campus? The answer is emphatically No. This answer is based upon the assumption again that the State should provide full-time teachers on a sufficient salary basis without supplemental fees from outside. In attempting to increase the salary of a man who comes to the University as a full-time professor by private fees, we are creating a precedent that is at once bad and will take years to overcome. I realize quite fully that the University has been unable to secure sufficient appropriations for its needs, but it is not the only institution in the state that is suffering. Almost every other hospital and institution that belongs to the State has some difficulty to contend with. The State Board of Health, for instance, probably as important a board as there is, is handicapped year after year, but it has succeeded in carrying on its work even under adverse conditions and even with a lower appropriation. Why cannot the University continue its good work with its present hospital facilities and the facilities offered in St. Paul and Minneapolis?

That leads to another thing: The Minneapolis City Hospital may receive private patients. That usually means emergency cases brought in, and a few who are able to pay are expected to do so, and do. They, however, are allowed to employ a private physician outside of the City Hospital staff, and the supposition is that he is paid for his services, but in case a member of the hospital staff is called into consultation, he receives no recompense, because he is a member of the City Hospital staff. He is doing his work primarily for the poor, but occasionally for the well-to-do. It seems to me that he who knowingly and with eyes open comes to the University, knowing the restrictions, knowing the salary basis, knowing what was expected of him, should be content to carry it out until he has succeeded. The new Faculty has not been in existence a sufficient length of time to prove or

disprove the value of their services, and it is impossible, as Dr. Rowntree has said, to secure big men for big places on a small salary, but it is not something for us to contend with except from a general educational standpoint, and their efforts and our efforts should be made, not before a body of medical men, but before legislative bodies, as they control the finances of these institutions. No one can increase appropriations unless he can educate legislators in the proper way to carry out his suggestions. The legislator does not understand, in the first place, or will not, in the second place, and, in the third place, many are definitely opposed to any effort that means advancement.

The supposition has crept into the medical profession of Minnesota that there is a division of feeling between the University Medical Faculty and the profession outside. That is very definitely true. There is feeling, very unfortunately so, because we all ought to stand together, and all ought to do the same work, but we must all expect good, honest treatment, and unless the University is willing to go a little farther than it has already, they cannot expect the support from the outside profession. The fact that the salary basis is not sufficient to take care of the teaching class is hardly a good argument because it was known beforehand what the salary basis was, and until the University educates the people broadly enough and sufficiently, and principally in its legislative classes, this increase in salary will not be heeded.

The sixth question is, Do you believe that per-diem patients should be referred to the University by the physician? This may be answered Yes or No, as you see it from your own point of view. It creates the impression that there is but one place in Minnesota which can take care of diagnosis and treat the sick. I am sure that the hospitals in the Twin Cities and the hospitals throughout the state will not heartily approve this idea. The University of Minnesota is not yet the clinical center for the Northwest. There is one other, and until that other is subordinated it is going to remain the clinical center of Minnesota and elsewhere. The Mayo affiliation has proved this beyond any question of doubt. Business in the Mayo Clinic has increased more than fifty per cent, and that means a great deal. It means that the affiliation has not definitely improved the State University, but has really improved conditions in the Mayo Clinic. Our business should be to go among the people and do a little more talking and explaining, with a definite understanding of what we are after, but if we are going to be in discord, if we are not going to be in harmony, if the profession of Minnesota is going to remain as it is now, an inharmonious body, it is going to be very difficult to get these two factions to join hands.

As to improvement of the plan suggested by the University, it is very difficult to offer one, except to keep plugging away with what they have. They have laboratories and have done research work. They have research workers who are busy now on problems which have redounded to the credit of the University. With a clinical hospital and another hospital under their control in part, they certainly ought to teach medicine in a very clever way. During the time that this University Faculty and the Hospital were joining hands, many of us here knew the circumstances. It was defi-



nately understood when the University Hospital was given,—or when the sum of \$120,000 was given to the University for the Elliott Memorial Hospital,—that it was to take care of the sick poor of the State of Minnesota. Patients were to be admitted to the Hospital under very simple restrictions,—certificates of a physician, of a clergyman, etc., these papers to be forwarded to the University in a chronic case and to accompany the patient in an emergency case. The papers were to be scrutinized, and, if approved, the patient was admitted, and was usually admitted without any question, because that is the function of most hospitals. Has the University lived up to its contract? It seems to me from what has been suggested that it has not, that it has failed to keep in mind this fundamental principle of taking care of the deserving sick. They have enlarged their standard of admission and made it more elastic, and have taken in patients not only in moderate circumstances, but have taken patients well able to pay, but who come into the University Hospital because it is free, and they can be treated not only surgically but medically without cost. This is a failure in contract, and should be reckoned with; and until the University Hospital can clear its skirts of this criticism, which is not infrequently made, it is hard to see how they are going to gain the support of the profession.

It seems that this plan to receive pay patients is the entering wedge to something greater. It means that doctors at the head of departments may enlarge their practice in this way. The percentage of beds at present would be very small, and no man would covet the remuneration which came, but that is not to the point. It is the principle involved,—whether it is just and right to the public and the profession of Minnesota, and whether the University is properly carrying out its aims. A bad precedent once established is very difficult to break. It is almost impossible, and people very seldom overcome errors of that kind. It is unfortunate that the domination of the few over the many should be in evidence as it seems to be.

I do not know what I can say further about it. I feel that the University needs support, but feel that its efforts should be directed to the legislature and not to the medical profession.

DR. GEO. D. HEAD: I feel that it is rather presumptuous on my part to say anything if Dr. Bell is unwilling to express his opinion upon this matter. I also feel a delicacy because of my own position as an old teacher in the School, and being in the position of a man who has voluntarily resigned his professorship because of his strong feeling in this matter. I am fearful that whatever I may say will savor too much of partisanship. Then, too, after listening to my good friend, Dr. White, and observing that he has so radically changed his whole viewpoint with respect to the relations of the State Medical School to the teacher and his private clinical work, I feel as if my own views must be perhaps antiquated and entirely out of date, and that I have not been able to keep up with the progressive ideas in Medicine.

The Medical School is an outgrowth of the combined efforts of the medical practitioners of this state. If you will think back you will recall that this is true, especially you who are familiar with the history of medical education in Minnesota. I know that Dr. Rowntree is not familiar with it. He has spoken about the history of

the School in a way. He has not, of course, made any definite reference to the School itself, as to its reputation, etc. He has been very kind. I am sure every Western man appreciates the shortcomings of our School, but, on the other hand, we must remember that we do have a record of which we may well be proud.

It is not a record especially of achievement in research, but it is a record of having produced a class of men, general practitioners, who have served the people of Minnesota well; and, when you come down to the final analysis, that, gentlemen, is the business of the Medical School of the University of Minnesota—the primary business for which it was established. Of course, coincident with it has been the encouragement of research, and all of the other higher ideals that go with a state institution of learning; but I would not grant for a moment that Minnesota and Minnesota men have not had high ideals; and any man who should attempt to argue that question with me would not have a sympathetic listener. It has not been a question of the ideals of the men. I believe it has been largely the difficulties under which they have had to work in a new country, developing a medical school from a lot of small, privately supported schools with diversified interests and attempting to build it into a well-developed institution of great capacities. Whether the institution is weak or strong, its organization represents the ideas and ideals of the doctors of the state of Minnesota. We are not living in New York or Baltimore; we are living in Minnesota. I am quite sure we have some definite notion of what the people of this state need. Through a long and painful course and under the leadership of the best medical men that the state could produce for the purpose, there has been worked out a type of institution fitted to the needs of the people of this state. Up to two years ago the institution represented the kind of medical school which the physicians of the state wanted, both in its aims and its ideals; and it graduated the kind of physicians that the people desired to serve them in the capacity of general practitioners. The State University is our university. The Medical School is the child of the profession of this state. It is universally admitted by all educators that no medical school in the state can continue to exist under a policy not approved by a majority of the practitioners of the state. The administration of the University and of the Medical School has deliberately, and against powerful opposition, now launched upon a policy not approved by the majority of the physicians of this state. I do not think any honest man can question that statement. It has taken this course under the leadership of a member of the Board of Regents who himself is vitally interested in the working out of this plan.

As I pointed out in my address before the Academy of Medicine this last week,\* one of the direct effects of this attempt to unite private and public interest, is the subject which we are here tonight to discuss. During my twenty years experience as a teacher in the Medical School one principle was ever uppermost in the minds of those who shaped the policy of the School, and that was this: The Medical School being a department of the State demands that, as far as possible, the private interests of the practitioner be separated from the public service which he renders to the Medical

\*This address was published in *The Journal-Lancet* of October 1.



School as a teacher. Review, if you will, the official acts of the Administrative Boards of the School, and you will find cropping out again and again a fear expressed in discussion or by resolution that some teacher or group of teachers might use the University as a means to advance his own interests. I cite only one instance among many, namely, the action taken by the Administrative Board two years ago in which one of the teachers in the School was refused permission to demonstrate in his private office to certain classes of students certain methods of treatment. The reason he made the request was because the University did not possess the equipment. The Board denied the request because it felt that a bad precedent would thereby be established. If you will go back over the Dispensary records of the School, you will find, again and again, official action of the Board dealing with attempts of practitioners serving in the Dispensary to refer patients to their private offices for treatment. Even when no charge was made by the practitioner for the service which he rendered, the Board frowned upon the practice, feeling that as a public servant he should keep himself free from even the appearance of utilizing his University connection to advance his private interests. As a result, during all of these years, with a few minor exceptions, the practitioners of the state have stood loyally back of the Medical School of the University. Is that true today? They have felt that as far as possible the Medical School has administered its affairs justly and with due regard for the rights of those who have not been so fortunate as to have a place on the Faculty of the institution.

Now, this principle of separation of public service and private practice was lived up to and maintained until after the University adopted the affiliation with a private clinic in this state. The idea that any medical teacher could have united his private work with that of the University was not dreamed of prior to that time. I am sure I know enough of the workings of the institution to enable me to affirm that such statement is entirely correct. If there were good reasons for the adoption of the policy the School has lived under since its original organization during all of these years, what changes have occurred, either in the practice of our profession or the organization of the University as a state institution which could so radically alter an established course of action which has proved of so great value in uniting the support of the profession in the University? I have given careful consideration during these last months to the whole question. Conditions have not changed. All the safeguards which the State places around its institutions to preserve them from the charge of favoritism or special privilege, should now, as before, surround the Medical School and preserve it, as in the past, from even the appearance of granting such privileges. It is the only safe course, gentlemen, to pursue for a state institution. Due consideration by any thinking man will see difficulties in the way. They have already appeared in the one year of the trial period with the private clinic. I hope a resolution will be passed tonight condemning this attempt to place upon state property in state buildings accommodations for the care of the private practice of any physician.

DR. H. B. SWEETSER: I am sure if we had continued our discussion night before last we should have gotten nowhere. Now, after careful thought, we have heard

from the Civic and Commerce Association committee, giving us their ideas and telling us how they arrived at them. We have also had the ideas of the men who represent the Medical Department of the State University. We have also had the ideas of others. I know that members of the committee of the Civic and Commerce Association who are listening to this discussion, are not here either as antagonists or as protagonists of the plan. They have come here, I hope, with free minds, anxious to learn what is best for the State University, and what is best for medical education in Minnesota. I have, as you know probably, rather firm ideas as to what is best or what is not best. I am opposed to this method of raising funds for increasing the clinical facilities on the Campus of the State University. I heartily endorse what Dr. Jones and Dr. Head have said, so that my remarks will not be concerned with the principle so much as to try to bring some light to the committee upon the necessity of such things.

As has been well said, the University Medical School is primarily for the education of physicians who will take care of the sick people of the state. I think that goes without question. If, added to that, we can have a great research center in our midst, that is very good, but that is not the primary object for which the people of the State of Minnesota pay taxes in support of a medical school. Dr. Jones has said that it is begging the question when you say that you cannot get big men to come here at any such salary as is given by the State University to its teachers. But they have come here with their eyes open, and I can see that we do no injustice to them or to the School if we refuse to increase their salary at the expense of a principle. Now, having this in mind, that the primary object of the State Medical School is to make physicians for the care of the sick in this state, what clinical facilities are so remarkably deficient that it would be necessary to sacrifice principle in this way? It is stated in the circular letter that has gone out, that there are only 200 beds available in the School for educating medical students. There is nothing said about the beds which are open for just such education over and in excess of this 200. These 200 beds exist upon the Campus. We have, besides that, for the development of medical education among the students, two large municipal hospitals of this state. They are not possibly research beds, but let us see just exactly what their possibilities are.

I can speak for only the City Hospital here in Minneapolis. I know that the St. Paul City Hospital has as high a standing as ours. The City Hospital here contains about 840 beds. It has in its main hospital building about 450 beds. Now, for clinical instruction half of these beds are at the disposal of the University Staff—the clinical members of the University Staff. We have, devoted to the teaching of students in medicine, about 70 beds; in surgery about 60; in gynecology, about 10; in obstetrics, about 25; in pediatrics, about 35; in mental and nervous diseases, about 15; in contagious diseases, about 70, which, added up, is about 275 beds. Now, if that is true of this city, it is probably true in St. Paul also; and that gives a total of 530 beds; and all clinical facilities asked for in the letter referred to are asked for the education of students, not education of research workers.

Now, what is the efficiency of our City Hospital as

a teaching institution? One-half of all our patients are under the direct control of members of the University clinical staff. They are not only available, but are actually used, and have been used year after year throughout the school year, to teach undergraduates of the Medical School. Now, who are these members of the medical staff connected with our City Hospital, who are also members of the medical staff of the State University? I will take the liberty of naming them. In the first place, as chief of the surgical staff at the City Hospital on the University service is Dr. A. T. Mann. He is quoted in the catalogue as "Associate Professor of Surgery," and is a graduate of Harvard. We have as chief on the medical side service Dr. S. P. Rees, whose faculty title is "Assistant Professor in Medicine," a graduate of our own University in both the Academic and Medical Departments; and we have Dr. A. S. Hamilton in the Department of Nervous and Mental Diseases, a graduate of the University of Pennsylvania; Dr. F. L. Adair, "Assistant Professor of Obstetrics," a graduate of Rush; Dr. Oscar Owre and Dr. F. R. Wright, "Assistant Professors of Urology"; Dr. F. W. Schlutz, "Assistant Professor in Pediatrics"; Dr. Wm. R. Murray, "Assistant Professor in Eye, Ear, Nose, and Throat Diseases"; Dr. F. H. Potter, "Instructor in Pathology and Bacteriology."

Now, all of these members are prominent, not only in the city, but in the state. They are in the prime of life. They are students who visit for study the medical centers, not only in this country, but abroad. They are specialists in their own departments. The interne staff has been drawn from all parts of the country. Today we have a graduate from Harvard taking his internship in clinical work here. We have two or three from Ann Arbor. We have some from Ohio, Indiana, and Illinois. Out of the eighteen men, seven come from outside the state to get the practical knowledge necessary to treat the sick. Now, these men come here, and submit to an examination by an examining board made up of representatives from the State University and from the City Hospital of Minneapolis and the City Hospital of St. Paul. These men are examined, and the man who stands highest has the choice of the first place; the second highest is given second choice; etc. What has been the result? Of these men who took such examinations only one of the first ten accepted a position in the University Hospital on the Campus. The first man selected the City Hospital of Minneapolis for clinical instruction after he had graduated. The second man did the same. Three went to St. Paul and one of the ten went to the University Hospital for postgraduate work. What does that mean? It means that these men, of their own volition, after being taught or told by men of former years, were willing to accept their postgraduate work from the clinic in our City Hospital. If that is good enough for the men who have graduated already, why cannot the undergraduates, or why do not the undergraduates, receive good clinical education, making them fit doctors to treat the sick of Minnesota?

Now, concerning the equipment of the City Hospital: We have been told, or it has been implied, that only in the State University upon the Campus can great medical work be done, and their equipment they consider low because they need more buildings, not for labora-

tory purposes, but for beds, and they need them to eke out the salaries of big men. Big men mean men who have already made their reputations. There are many big men who are not known. There are many men who are doing great work, who are not big men. Just consider who discovered the clinical use of cocaine. He was only a medical student. It does not require big men who have already made their reputations to come and make a reputation at the University Hospital for research work.

Then, coming to the equipment of the City Hospital: Tuberculosis at Hopewell can be studied under the direction of a man who has devoted all his life to that one subject, and Hopewell is open to students of the State University. They have 127 beds at Hopewell open for the study of this disease for the undergraduates of Minnesota. There is a contagious department embodying the most modern, ultrascientific equipment, where may be studied all contagious diseases, and I know that the University Hospital will not accept this class of cases, and it is a class of cases that mean very much in the care of the sick of the state. Is not that so? Surely, it is. We have a pathological laboratory thoroughly equipped with the most modern appliances for diagnosis of all kinds, including cages for animals to be used for diagnosis in difficult cases, and still it is said that difficult cases cannot be diagnosed unless by a body of men upon the University Campus. We have an x-ray department with the very latest type of instruments just installed, presided over by a friend of mine who is a member of the medical staff of the State University, a man who stands high, a man for whose opinion I have a high regard, a man who is a student, a man who is giving his full time, not half his time, to the City Hospital.

Concerning the diseases of children, a subject that is second to none in the interests of the state: We have a large building with extensive grounds, publicly supported by the citizens of Minneapolis, Lymanhurst, for the study and treatment of children. I have forgotten just how many are there now. I think thirty or thirty-five. That is presided over also by members of the staff of the Medical School of the State University. Who can say that undergraduates cannot get proper education to treat the children of the state, the back-bone of the population of the state, upon whom the next generation depends, unless they go to the Campus for such education? Will they have any pediatric department such as appears at Lymanhurst now? We have a surgical department. Let the members of this committee go in the morning, and watch the well-equipped surgical department operating-rooms and operators. That applies also to the medical department. And pass from the Minneapolis Hospital to the St. Paul Hospital, left out of the reckoning of 200 beds, and this shows that between 500 and 600 beds are found there also.

What class of patients are treated in the City Hospital? It seems to be implied in what Dr. White has said that the best interests of medical education demand that patients for clinical purposes be drawn from that social group that is able to pay well, as well as from those less fortunate. He seems to imply that the patient who can pay—from the mere fact that he can pay money—is essential to his ability to disseminate knowledge to medical students. Possibly they add something to di-



seases which those who cannot pay are immune to. If so, it is new knowledge to me. I have treated many patients who could not or would not pay, and I have treated some who could and did pay moderately, and a very few who could pay good fees; but in all the years in which I have come into contact with patients, I have failed to observe any difference between the poor sick and the rich sick, either in their anatomy or their symptoms, or in anything, except that the rich sick are less amenable to the discipline necessary for their proper care. In all respects the sick whom I see in the City Hospital under my care are of the same stock. In the City Hospital they are not all paupers. There are many gentlemen and refined women there as patients, and it is a libel to say otherwise. There are many women in the obstetric department who cannot pay medical fees and some who do pay per-diem fees; and they go there because they think they are going to be well treated. It is not true that all the patients are paupers. Those who can pay, do so according to their means. Here in the City Hospital we have these various classes. It is true, however, that no fees are paid the attending doctors. I have had patients say, I will go to the City Hospital and would like to have you operate on me and will go there for nothing, but will pay you a fee. Such fees cannot be accepted. Again, it would be a libel to say that the attendant doctors do not give these patients the best treatment. To know otherwise you have only to follow the members of the staff in their duties.

When you say a surgeon spends only an hour in teaching students, it is a fact that a surgeon often spends a morning or part of an afternoon in the hospital operating-room, and more time for studying his case. You would be surprised if you came to the City Hospital and saw how these surgeons and city physicians depend upon laboratory methods and accurate diagnosis in reference to their cases; and their students are taught with this same care.

Further, there are decided disadvantages in having all the clinical teaching of students carried on at one state hospital, for the following reasons: The patients will be of the chronic types on the Campus, and will not give a full and rounded view of the various ills to which humanity is subject. This is true of the present hospital upon the Campus now, and it is a complaint which is made at Ann Arbor. That is a small town with a hospital of about 500 beds. Students educated there say it is a fine medical school, but there is a deficiency in clinical teaching because of the fact that there are practically only chronic cases there. They would know some diseases,—diseases of the liver, etc., but when it comes to acute diseases, there is a deficiency. That is so, and will be so, on the Campus. Secondly, it is universally agreed that education is broader and deeper if imbibed from various sources and various viewpoints. The universities, even of different countries, exchange professors, so that their students may get ideas of various men teaching the same subject. Students have always been advised to travel from one university to another, if at all possible, for this same reason. To my mind it is a backward step to center in one place, and in a small body of teachers,

that which is now done in three places and by a body some three times as large, especially when the efficiency of these hospitals is as great as it is.

Nor need this committee feel sorry that the sick of Minnesota are not being well cared for, as is also implied in this printed letter, nor that undergraduates in medicine are deprived of proper facilities for learning. Rather, the committee may well be assured that private patients and the acceptance of fees will work to the injury of the institution. Surely, the acceptance of fees by professors will not work for the harmony of the staff. In this letter there are all sorts of restrictions placed about it. Why? Just because we all know that that will happen. It will be bad for the patient, because we are all human, and surely a patient who can pay a consultation fee of \$100 and who can submit to an operation and pay for the same, will possibly—probably—if we are human, as we all are, be better treated than one who is not able to do so. Maybe this will not be so with the present staff, but some time somebody will creep in who will have this commercial spirit, which, unfortunately, is very rife today.

DR. F. A. DUNSMOOR: I had no idea a minute ago that I was to speak, but this subject interests me as one who took it up so long ago that, as I look over this company, I see only one man who is old enough to have been associated with me at the start, and that is Dr. Abbott. I wish to speak on only two topics. I am sure every member of the profession here present knows something about the development of medical education in the University and the work done during the last thirty-eight years. It so happened that in our efforts to start the first medical college at the University I got the conception of uniting together the hospital training and the didactic work from Long Island College Hospital, and, unfortunately, I put it into our first training-school. I say *unfortunately* because it turned out that the hospital attachment which could be used for clinical purposes was a financial loss, and it dragged down the other department and had to be reorganized, so that the Medical College itself might go on. Being fully aware, however, that clinical instruction was the instruction to make, as Dr. Sweetser has said, men and women who could be of service to their fellows about them and to the State, we utilized every possible way of getting clinical instruction. Up to the time that the reorganization of this Medical College took place we had nearly 3,000 beds with patients in them under the care of reasonably well-educated and thoroughly devoted men, who did not give a thought to their salary. I say up to that time, and it has been so ever since to my certain knowledge, that every hospital in the state, as well as the municipal hospitals of these two cities, was at the disposal of the State University and its Faculty for clinical teaching; not only did indigent patients, but other patients who wished to be of benefit to the students—all united to help the cause; and I have only this much to say, having no further desire on earth to be associated with any medical college, aside from seeing that it succeeds, and I am sure there is not even a private hospital nor any other hospital in the two cities today that you cannot have, with its competent staff of instructors, without pay, to be utilized for the



development and advancement of medical education, not only for the State University, but for the benefit of the profession and the welfare of the people at large.

DEAN E. P. LYON: I surely had no thought of making any remarks, and I shall be quite rambling in anything I attempt, at this short notice, to say. In a case where men's minds differ as do many of those present, it has always seemed to me well to begin, if possible, with points in which we do agree. I have been much pleased to see that, so far as one may gather from the expressions given here, there are many points of contact in which you do agree with the University and with those men who are in its Medical School. You and we are, of course, interested in the great profession of medicine and in the maintenance of its standards and integrity. Of course you see that, in order to maintain these things, we must send out competent, highly trained medical men to take the places of the others, and to fulfill the demands of the future. There is no doubt about that, and, of course, there is no doubt that you all want the State University in performing this function—and you no doubt agree that it should perform this function—to be properly supported to enable it to perform the great work put upon it. But when we reach this point we begin to differ more; and one of the last speakers has spoken as if there was a great difference of opinion as regards the use of the City Hospitals. I am sure he has rather over-magnified that. I do not for a moment say, and cannot foresee a day when, we should cease to use these institutions. They are valuable to us. They give us clinical material that we could not have otherwise. We shall use them, and shall continue to do so. At any rate, even admitting that, we all agree that the University ought to have facilities of its own, because certain of its functions cannot be so well fulfilled, let us say, in institutions which it does not completely control, and here, again, although some of us differ somewhat, we all get back pretty nearly to the same ground.

Dr. Head says the primary function of the Medical School is to produce competent practitioners. Yet, the medical practitioner of the future who is able to approach his work in a scientific spirit and with a full scientific foundation, must be trained under men who are doing, and who know how to do and have done, what our scientific research work is doing; and you all would admit the great necessity of the primary function, which is to make practitioners, yet along with that must go scientific research work, and the student must have some share in that and know about it in order to catch the spirit of it. Our differences are not great on that score.

Now, come to the question as to whether the University needs these facilities. Here, again, I want to present a different point of view from any that has been presented so far, not because I represent any primary interests in the administration of the Medical School, but because I represent one of the fundamental sciences. That science needs many things. In my own department we need greater strength in the division of experimental chemistry. This is true of other departments. It cannot be developed to its highest degree under present conditions. Yet we have become so thoroughly persuaded that our primary need

is not in our own direction, but in the extension of the hospital, that we join with the clinical men in advocating the extension of clinical facilities; and it seems to me that our opinion, intimately connected as we are with medical education, ought to carry weight. Our equipment at the present time is 200 beds. We need more. That is perhaps the main plea that I wish to make.

Coming now to the subject of pedagogy. Some of you older men remember the time when all the fundamental sciences,—anatomy, etc.,—were taught by active practitioners, who spent a few hours lecturing on these subjects every week. You all know there were fears when these came under the care of full-time men. And yet, from the standpoint of teaching and the standpoint of carrying on systematic research work, a great change for the better came over medical education when the full-time plan was introduced. Nobody, I think, would go back to the other. We all would like, if possible,—I should,—to have some of you men engaged in my own department to give it some touch with actual practice, but going back to the old way of making the teaching an incident to active practice would not be approved. The same thing is coming into view with regard to clinical practice. It is evident that we shall always need men in active practice as part of the clinical staff. Yet as leaders of research we need men who are primarily University full-time teachers, men who give their entire attention to University work. When we come to this department, however, difficulties arise which did not exist in the case of the fundamental departments. We are to deal, not with men who are teaching the great underlying sciences, but rather with those who are to teach the facts of active practice. Is it wise to keep these men, who should be leaders of the profession, from any touch with it? The highest University expression has been that it is not wise. We are laboring to get at the proper adjustment there, and have found the greatest difficulty. Johns Hopkins has settled it by giving a fair salary to these men and putting no restriction upon them except that any fees received shall go to the University. That has been criticized, and is probably justly criticized in certain ways. Is it not better that some way should be retained by which the man is in some intimate, real connection with the profession? How can that be found? Surely, it cannot be found by leaving him entirely unrestricted, because that would mean establishing an office down town and building up a large practice. The experience of Johns Hopkins was, that it was a fatally large one and detracted from the University work. It is the experience everywhere in the German clinics also. It is the opinion that it is not a wise procedure to leave the head of a department free,—having chosen that head for his great achievements in medicine,—to build up a large practice, because to do so was to withdraw him from that work for which he had been elected. What is the middle ground, then, between these two alternatives? On the one hand, to withdraw him entirely? Shall we say that these men chosen from all the world shall treat only the sick poor of the state, or shall we say that they shall have some touch with the medical profession and active practice? I must say, in this regard, that I have changed my view. I thought a few years ago

that the best plan would be to have his laboratory with his patients, who were of the type who did not pay either the hospital or the physician, and to withdraw him absolutely from the side of medical practice as it exists; but as I thought this over more and more and as I came to recognize difficulties in all directions, and as I came to recognize what all doctors tell me, that these men should have active touch with their profession, I came to see that they ought to be retained, and what we are laboring for now is to define and make a proper limitation, one that shall be fair to the doctors and which shall add to the efficiency of full-time men, and yet leave them with you as active practitioners. That is what we are laboring for, and that is what I believe is right. It is not to allow a man to go in as a regular practitioner and build up a large practice, but not, on the other hand, to withdraw him so completely from active practice, but, on the other hand, such adjustment between the two as will enable him to fulfill both functions to the best advantage. If you can help us to reach a conclusion which is fair to all, along these lines, you will do a great thing.

DR. J. W. BELL: If I understand this problem, it is a question of policy. I think we all agree that the Department of Medicine should, if possible, enlarge its clinical facilities. I think there is no question about that. The question is how it shall be done. Personally, the more I look into this problem the more opposed I am to the method suggested. I think it is a departure from the past policy of the School, that it is unwise, just as I think the State made an unwise departure a year ago. The State of Minnesota for years pursued a very sound public policy. It did not mix its public work with the work of an individual or individuals. Now, the problem before us tonight, as I see it, is how to plan to improve our clinical facilities and at the same time not depart from the past policy of the department.

The only method I see would be to depend upon the State, as we have in the past, and I believe we can secure, with a united profession, the necessary funds to give us proper buildings and maintenance. That can be secured only by united action. It cannot be secured by a divided Faculty, and I cannot believe that the Faculty of the University of Minnesota is a unit in the proposed move. Perhaps I am in error. If so, I would like to be corrected. I do not believe that under the old rule, the democratic rule, the one that prevailed when I was in active work, namely, the practice of discussing and threshing out our problems in open Faculty—if that method prevailed today in the medical department, it would to my mind be a stronger school. You made an unwise departure when you gave up the democratic rule of fighting battles in open Faculty meeting, and then, having decided one way or the other, uniting and carrying out the will of the majority. I believe a step in the right direction would be to go back to the old rule.

How can we get these improved facilities and at the same time not depart from the past policy of the School, which I think ought not to be departed from? The only method I see open is to depend upon private help. I confess I have some sympathy with men who come here under promise perhaps of large things and

find themselves contending with a salary scarcely large enough to take care of or feed and clothe a family. I do not believe that the University is entirely in error in the view that something should be done in the way of reasonable compensation for men of ability. Today the expense of living is such that we cannot get along, as we have in the past, paying meager salaries. If I were going to offer a solution, it would be that the effort be made to secure private funds or funds from private individuals to build a hospital, not on the University Campus, not on the grounds of the State and having no connection with the State, where men might handle their private patients. I believe such a plan is feasible. I believe there will be no difficulty in securing money for that purpose, and, personally, I would like to see the medical mecca located in Minneapolis and not in some other part of the state, not that I have any feeling against efforts being made in other portions of the state—and we have some excellent clinical groups at Rochester and elsewhere. I believe such a plan is feasible, and I believe we would have very little difficulty in securing the necessary funds to increase the clinical facilities on the Campus.

I do not fully agree with the theory that we can send our students all over creation for clinical work. I believe clinical work should be as much as possible grouped near the Campus. On the other hand, I have very little sympathy with the theory that individuals differ. I think a medical man capable of treating the poor man is capable of treating the rich man. There should be no difference in the management of individuals. An individual is an individual, whether he represents one dollar or a million. I am unable to see any solution of the problem except as suggested, and I believe such a thing would be feasible and that it would give a man opportunity to develop private work and at the same time would not cause the School to depart from its past policy.

I think we made a grievous mistake a year ago in opening the door. This is the first knock, and I think we shall probably not have to wait long before we have others knocking at the door. It is sometimes dangerous to establish a precedent. We have established a precedent, and now begin to see trouble from it. We have not reached the end, but I believe now is a good time to stop, and not make the mistake of adopting an unwise policy. I think we should adhere to the policy of the past of depending upon the State as much as possible. As far as that is concerned, I have no objection to urging private individuals to give their means for the purpose of constructing buildings on the Campus. I concede that. On the other hand, it seems to me the proper way to meet the wants of the clinical men, would be to do so by a building off the Campus, but sufficiently near so that students could have an opportunity to see these patients treated. I see no other solution of the problem, but I hope the Medical Department of the University will not make the mistake that the State has made in giving up its past policy. I believe the policy of the past is the correct one, and we should adhere to it.

DR. J. E. MOORE: I think that it is only just that some of the criticisms that have been offered should be answered. Dr. Jones accuses the University of fail-



ing to keep its contract, so to speak. Now, if we have failed, gentlemen, it is your fault, because no one is admitted into that hospital until a blank is signed by a physician who had charge of the case, presumably, outside, stating that the patient is not able to pay; therefore that criticism is not just. Another criticism Dr. Jones made is that the University Medical School is in the hands of a few. Is not that the correct way? Is not that the way all great things are done? Do the masses do the great things? They have got to have leaders and centers of men who are particularly interested in the work, to bring out the great things. I was rather surprised at one criticism. That was, that some of the leaders are old men. I take this criticism to myself because I am one of the two remaining original members of the Faculty. We have served twenty-eight years. I have recently tried to shift some responsibility, but my co-workers in the University would not listen; neither would the President or the Regents. They say, let the youngsters do the hustling; you stay and act as leader. It requires the combination of old and young men. Who head our great banking institutions? Men of mature years and large experience. Who head the armies? Men mostly over sixty years of age. They are called in when there is trouble, to help out.

In regard to Dr. Sweetser's comments on the hospitals: All that he said is true so far as the number of beds is concerned. I was delegated as a representative of the University of Minnesota, at a meeting of the medical departments of medical universities, and at that meeting the very question came up as to the relative value of the university-owned hospital and the municipal hospital, and the unanimous verdict was in favor of the university hospital. The difficulty is not that the City Hospital is not as good a hospital as the University Hospital. The difficulty is that we do not have the opportunity to use material as we do in the University Hospital. For instance, if a fracture comes into the City Hospital, and students are right there in the operating-room they can see it, but if they come a few hours later they cannot see it at all. They cannot go into the ward. One of the greatest changes in medical teaching on the Campus today is that we have clinical clerkships. We assign a certain man to go into the hospital and study the patient—to sit right down opposite the patient and make a diagnosis, study carefully, give the diagnosis in writing, and make suggestions of treatment. That is one of the best methods of teaching we have. The patients like it. When these several men come in and study them, and have a laboratory examination made, etc., they feel that they are being well taken care of. That sort of teaching cannot be done in municipal hospitals at all. The restrictions are such that it cannot be done. Dr. Sweetser stated that they had internes coming from all over the United States. So have we in the University Hospital. We have three from Johns Hopkins there now as internes. Why do the men choose the municipal hospital as the place to take the internship? The municipal hospitals are the favored hospitals in every city because they have such a large number of acute conditions. It goes without saying that those are in the municipal hospitals, and these young men want to see them, and that is why they make that choice.

DR. S. P. REES: I have not before been asked to say anything here tonight, and I have not prepared anything to say. I am, however, unwilling to have my name called and side-step completely, if, as I believe, we are here in good faith to work out a problem for the good of our University. I am a member of the University Faculty, and for that very reason I do not feel that I can speak in detail either for or against the plan that is presented. With all my heart I want the University of Minnesota and its medical school, which is the only center that has helped me to earn a living in a more pleasant way than by hard manual labor—I want that school to be the center of learning and medical education in the State of Minnesota.

Dr. White said that one valid reason for opposing the affiliation of a year ago was, that the clinic at Rochester would overshadow the Medical School of the State University. I, with others—I believe with the great majority of medical men of the state—opposed that plan. I am sure we did not oppose it because we did not want a clinic or group of men at Rochester to get all the success that they possibly could get. Far from that. If that city can become the greatest medical center in the world, it would be to our honor and to our credit, and we are proud that it is in the State of Minnesota. We opposed that plan because in some way we felt that our institution, being supported by the State, should not show any kind of favoritism, so that the institution could not help occasionally every physician in the state; and, what is more, so that every physician could not come to that University and that Medical School and expect to get recognition and help and support like everybody else. I think there is where the trouble will come in—that the affiliation cannot help showing some form of favoritism. Now, then, if any of us feel that the proposed plan may not be a wise one, it is for that very reason, and not that we do not want the men who give all their time to the School to be well paid. It may not be fair to say that full-time men are going to give all their time and then do this private work; but it is not that we do not want them to have all that they possibly can get. We do want it. We want the greatest, biggest men that we can possibly procure, and the objection, if there is a valid one, is this, that the plan will breed discord and feeling and unfairness, so that the School may lose the unanimous support of the profession.

I hope that the problem can be worked out so that the University men can get substantially what they want, because we want to help them, and for that reason I hope we shall not make the same mistake that, I think, was made a year ago when the affiliation was handled by a comparatively few, and when those few were unwilling to openly share their opinion and discussion and get counsel from the many, and when there was a tendency all along the line to hurry. The alumni of the University asked again and again, not that the plan be abandoned, but they asked that it be deferred so that, if it were wise, they could all come under it, and if not wise there could be such an unanimous and such a widespread expression that there could not be any doubt about it. I believe, without having heard until today of Dr. Bell's suggestion that some other method of getting this same result, whether some such plan is



found wise or not, that plenty of time should be given to work out a solution.

DR. A. E. BENJAMIN: This is a subject that I have studied more or less and one in which I am greatly interested. For that reason I favored the consideration of this subject at a meeting which would be fairly representative of the University men, as well as of the men outside. The University is not your university any more than mine. It does not belong to the men who teach there any more than it does to me. We all pay taxes to support it. It should be a university which represents the interests of every citizen of Minnesota. It should be the incorporation of the ideals and ideas of the men who inhabit this great commonwealth. Therefore no man or set of men should be allowed to step in and usurp the power which belongs to the many. For that reason we should all congregate at times like this and discuss this important question. The other night when this subject was brought up I said it was one of the important questions, not alone of the profession of the state, but it had to do with the welfare and future benefit of the community at large; therefore we should not be narrow-minded in the consideration of it. It was my proposal the other night that we should have a fair consideration; that this question should not be decided finally by a few in secret chamber, but it should be a fair consideration of the subject. Therefore we should consider it from the various standpoints as outlined in these questions. I have tried to answer these questions as brought forward by the Civic and Commerce Association in a way which should be constructive, rather than destructive, and offer some solution of the problem. The first question in the questionnaire:

1. Do you favor enlargement of the clinical facilities of the Medical School of the State University?—has been answered Yes by all the previous speakers, but I have modified that by urging legislative appropriations to enlarge the Campus hospital facilities for free beds only, and also by using the abundance of clinical material in the Twin City hospitals which could be utilized as formerly. There is no dearth of clinical material. Cannot two cities as large as Minneapolis and St. Paul run a medical school of eighty men in a class when Ann Arbor, a small country town, can produce great men? Why, it is absurd. We have sufficient clinical material, but it is not utilized. Why? Because some men wish to monopolize the clinical facilities so that they can only learn by having these clinics on the Campus. Dr. Sweetser has pointed out that just as good teaching is given in the Minneapolis City Hospital, and that is true. Being a member of the Board of Charities and Correction, I have endeavored honestly to see that appropriations were made for equipment of the City Hospital, and I think all the men connected with the Hospital have little complaint to make as regards what we have tried to do to equip that hospital. I have stood for everything in the line of progress; and one of the things to which I can point with pride is the laboratory of the x-ray department and the new contagious hospital. To say that we cannot teach men how to treat diseases in this municipal hospital is really absurd.

2. Do you favor the completion of the proposed hospital system?

What is the proposed hospital system? Does any one know? Is any one able to say? This pamphlet does not say what the hospital system is. Is it a sys-

tem of favoritism? Is it a system which represents all the practitioners of the state? Is it founded upon equity, equality, and utility, and not upon favoritism? It must be founded upon right principles. I have always stood for what is right, and have been opposed to what is wrong. No one can point to my record, and say that at all times I have not stood for what is right. The hospital should be enlarged upon the plan originally devised by the Faculty. Development upon wrong principles would be unwise. When the present hospital was established on the Campus you all know who were at the meeting. All the men, and one man in particular, said that a university hospital can be established only upon this principle,—that every bed be free, and no pay patients be accepted, that no physician connected therewith be permitted ever to receive a fee from a patient. That was the unanimous, united opinion of all at that time. Can we now depart from that principle established at that time and stated as the decision of the Faculty, Board of Regents, and the medical men throughout the state? Why should we make this change in so short a time. It is wrong. It involves favoritism. Do you suppose for a minute that the legal fraternity of this state would tolerate such procedure in one of their men, and allow a man connected with the legal department of the University to accept fees, to have office rent paid by the University of Minnesota, and to have clients sent to him and pay him fees there? Why are doctors favored? Why can a few accept fees in state institutions? It has been the policy of municipal and state bodies not to allow any man connected therewith to receive any fees in connection with his office. Shall we depart from this policy established after years and years of experience?

3. Do you favor supplementing such funds as may be secured from the state by efforts to obtain gifts from private individuals for new buildings? This is not a Rockefeller Institute. We do not need Rockefeller's millions. The State of Minnesota is rich. To this question I would say Yes, providing such gifts have no restrictions or limitations attached thereto. I would say no gifts favoring aggrandizement of any individual, firm, or corporation, or for advertising purposes, should be accepted. If we accept any gift of that kind for the benefit of one or more men or corporations, we will be sorry. There are many men as disinterested as Dr. Elliott. He could receive no benefit by offering that hospital, but others who are now living may offer money for building an institution which would benefit them greatly.

4. Do you favor meeting expenses in new buildings by taking per-diem patients until other funds are available?

To that I said No. There are enough poor sick people throughout the state who should be taken care of by such a hospital, and, if the same efforts made in this matter were put forth in the legislature by the Civic and Commerce Association and other people, that body could be persuaded to appropriate funds sufficient to obtain additional hospital facilities. The per-diem plan was discarded by the Regents and Faculty medical men after months of discussion. It is unwise, unfair, and unjust. Therefore I would say that if we use our influence with the legislature we can get what we want. This State can afford to take care of its sick poor.

5. Do you favor supplementing inadequate salaries

by permitting full-time clinical teachers to accept fees from a limited number of patients who may be referred to them for diagnosis and treatment on the University Campus, only during such time as may show the relative advantages of part-time and full-time teachers?

To that I said No. The state can, and usually will, pay adequate salaries for full-time teachers if enough pressure is brought to bear. Teachers should receive no pay from patients on the Campus, for public service should be kept separate from private business. Clinical teachers during certain hours should have the privilege of doing outside work. I think it is wrong to deny a man who has great ability the privilege of practicing outside of his teaching hours. Suppose a teacher should be required to put in the hours between nine and four. He could easily have consultation hours after or before that. All of you remember Pepper, of Philadelphia, and how many hours he used to put in and what great things he did; and a great deal of his work was after 4 P. M. and before 9 A. M. So I think this plan would solve the problem, but there should be a limit as to time,—but not as to the number of patients.

DR. S. M. WHITE: I am not going to talk long, but there is one point which I think ought to receive some consideration. I am inclined to think that a very decided misapprehension exists as to the policy or propriety of the method by which these men may be allowed to add to the salary paid. As a matter of fact, that policy is already adopted in practically every department of the University. The chemist, the pathologist, the bacteriologist, and, I might say, the engineer are both allowed and expected to do this; but the amount of work which they do is not very large, though it adds somewhat to a rather meager salary, and permits those men to do a better class of work, and to go abroad, and to go to other institutions and do their work in a better manner. It involves no new principle whatever, either in this institution or in others.

Secondly, it seems to me that a very decided misapprehension exists as to the competition which these men would introduce. Much has been said of preferment and of giving undue advantage. Now, as it has been formulated, it seems to me this is the method to prevent exactly that. Dr. Bell's proposal of an institution adjacent to the University has been considered, but it has seemed to us that such an institution would allow the very thing that you are seeking to avoid and that we are seeking to avoid; and to put the man on the Campus and keep him there and control him while he is there, will cause much less actual competition with men in actual practice than any other method.

I have been in a situation to see the disadvantages under which a half-time man works. It compels him to maintain two organizations. It compels him in his outside work to do a volume of business, as I have calculated informally, four or five times that which a man with a salary of \$5,000 would have to do. The man in the University must do this. It is already provided that in laboratory branches a man receives a certain sum of money for consultation. He uses the University material in the University of Minnesota, and he pays to the University ten per cent of his receipts. That is for the use of material that the State has furnished him. No doubt some such provision as that would be made in this connection. Whether or not it is made seems immaterial, but that a man be allowed to devote

practically his whole time and be free from the necessity of outside organization, and that he be required to spend his whole time on the University Campus and in University business, that he be allowed to add a small sum to his salary because it would be limited by the restrictions placed about it, seems to me just the educational step that can be taken.

I believe that the unproductiveness of the School has been caused by the checks every man has worked under. He has put in part of his time, and the rest of the time has had to work to be able to spend the time at the University. It seems that this thing makes real university teachers, and removes them from active financial competition with medical men and surgeons throughout Minnesota; and, as I have attempted to formulate it, the very things that have been objected to here, have been betterments in the hands of the Committee and have been the things that have determined the plan.

DR. HEAD: I think, for the instruction of the Committee present as our guests, one or two questions might be asked.

I would like to ask Dean Lyon this question: What makes the Administrative Board feel that the State will not grant a reasonable request of the University for enlarged hospital facilities? that is, have any attempts been made to secure appropriations and failed?

DEAN LYON: The last time I tried for a contagious hospital I failed.

DR. HEAD: You got your Nurses' Home, however.

DEAN LYON: We did not ask for it.

DR. HEAD: You secured your request for space to house the attendant help, etc., and thus enlarged the capacity of the hospital, how many beds?

DEAN LYON: That was not done at the last legislature. It was at the one before. Nothing has been given to the Medical School by the last legislature.

DR. HEAD: Was any effort made by the alumni and friends to secure such legislation?

DEAN LYON: Every effort was made within the methods adopted by the University.

DR. HEAD: Was any appeal made to the academic or medical alumni for support?

DEAN LYON: Yes.

DR. HEAD: By officials of the School?

DEAN LYON: Yes, sir.

DR. HEAD: I have been a member of the Advisory Committee of the Alumni Association for years, and I do not remember anything of this kind.

DEAN LYON: I may be mistaken.

DR. HEAD: By you as an official of the School?

DEAN LYON: You remember that the University has adopted a different policy as regards legislation from what it used to have. If I understand it correctly, it is not considered wise for every separate interest of the State to go to the legislature and lobby for their particular interests. It is rather considered wise by the Regents that each department of the University shall present to the Regents the request and the proposals which they consider are needed. The Regents then consider all of these, and from them select those



projects which they consider most pressing and most needed, and present these to the legislature. The Medical School proposed the Nurses' Home and the Contagious Hospital to the Regents. The Regents struck out the Nurses' Home,—I am speaking from memory,—and put in their request the Contagious Hospital. The legislature refused to give money for that. As I have stated, the Regents believe that it is not wise for every separate interest to appeal to the legislature, and therefore it is quite likely that no effort of the kind that you mention was made with regard to the alumni, but, if I remember rightly, before making this request of the Regents we consulted the alumni.

DR. HEAD: Would you feel, realizing that the Medical Department has a large number of friends throughout the state, who have not been appealed to in support of the very great and pressing needs of the University, that it would be wise to attempt to carry through a plan for private practice upon the Campus—I ask would you feel that that plan should be carried out even in opposition to many physicians of the state, rather than that the other plan of appeal to the legislature should be chosen, thereby uniting all medical men of the state, both alumni and practitioners, in a united effort to secure from the legislature additional help to obtain more hospital facilities and provide more space for clinical material?

DEAN LYON: Of course you know very well that nobody regrets more than I the unfortunate difference of opinion between those who administer the affairs of the Medical School and a certain proportion of the profession. I would give almost anything to see us able to get together on this proposition. On the other hand, I cannot entirely endorse the exact expression of affairs that has been made here this evening in regard to the University Medical School, namely, that you ought to run it. It seems to me that as all of you own the state of Minnesota, but only one man is put in the governor's chair, so it is in the Medical School, the selected representatives of the people are put there to study its problems and in their wisdom to decide what should be done. We should make a decided factor of the attitude of the people, and the profession should have a big influence upon us, but, after knowing all that we do of medical education elsewhere, and of what is wise to do here as the chosen administrators of that institution, I should not want to promise that we would be bound by what the physicians of the state, with all their private interests and with all their lack of intimate knowledge of the problems, should think was wise.

DR. HEAD: Is it not possible that men like yourself, who have come into the state from other states, have misinterpreted the interest that medical men have shown in this matter in connection with the affiliation of a year ago and the plan now before us? It seems to me that it ought to be a very encouraging sign that medical men of this state are so deeply interested in the School. Surely, there can be no harm in a very thorough consideration of a matter as important as this; and, I believe, as a man who loves the University as I think I do, that our real interest is not that the medical men or any group of medical men want and shall be given their way or shall "run the Medical School," but

that the wise thing that will not harm the University shall be done.

The charge has been made, and was made very freely, a year ago, as you know, at the time of the affiliation, that the main reason why opposition developed was that some men were jealous of the prestige established at the private clinic at Rochester, and that that view was encouraged by the men who were in favor of affiliation all through this state; and many honest men,—you know this as well as I,—were placed in a most unfortunate position where every argument they offered was discounted because of the widespread circulation of that untruthful statement.

The laymen of this state must get themselves right, Mr. Dole, upon this question. It is not a question at all of personal jealousy. It is a question of the best interest of the University, and I am sure that the men who have opposed the affiliation, and who now oppose this plan for further uniting private interest with the State, are doing it for the sole purpose of helping an institution which they love. As Dr. Bell has said, we are interested in this institution, and we want to see its progress and its growth made along proper and sound permanent lines. We may differ with Dean Lyon or with the President of the University, but we ought all to love the institution so much that we are willing to make sacrifices and to submerge our personal interest; but let us all get on common ground and discuss this thing as one honest man discusses it with another, and not on the ground of saying to the man who opposes our argument that it is a purely personal and selfish motive that he has in doing this or in that. Let us get away from that, and in your future deliberations in the committee and in the larger committee of which you, Mr. Slater, are chairman, I hope that you men will take our criticism as an honest criticism and our position as an honest position, which is to preserve the best traditions of this School, and safeguard the state.

DR. C. A. MCCOLLOM: Will you allow an old member of the Society, who has never been a teacher in the University, who is not a surgeon, and who can have no jealousy under any circumstances connected with this matter,—will you allow him to emphasize in every way possible for an honest man to emphasize every word Dr. Head has said. There is no jealousy in this. It is with a loyal heart to Minneapolis, where I have lived since a boy and have seen the Campus grow and the Medical School grow, that I say this, and I thank Dr. Head for every word he has said.

DR. R. E. FARR: The hour is late, but I desire to ask Dean Lyon or Dr. White one question, which I think will be well for this committee to consider in considering this proposition. We know that the state legislature has been a little slack in granting the funds necessary for the Medical School. Some of us have very definite ideas as to why that is so. One reason is based on the fact that the public sentiment in things medical is largely made by the physicians of the state, and always will be. I would like to ask what these gentlemen think would be the effect on the University's ability to secure future support for the University Hospital and its maintenance, if such a scheme as the proposed one were adopted. I would like to know what the effect would be when you have the two services run-



ning along, one paying and the other charity, and one perhaps coming to ascendancy and the other going down. Would it be to increase this failure on the one side to make the University Hospital self-sustaining, or would the thing work out to the advantage of the University, in which we are all interested?

DR. BENJAMIN: It says on the questionnaire, "Please get replies in by October 7th." There is no such hurry for the committee to make a final report on this thing. I think we can afford a little delay, and the committee of the Civic and Commerce Association, I hope, will be so broad-minded and willing to receive enough information that whatever decision they come to will not be hasty. I hope that they will deliberate on this question, and give us time. Let us take it up before the State Medical Association, which is to meet on the 11th and 12th and 13th of this month, and see what the sentiment of the State Association is. The committee can well afford to wait until they can crystallize the opinion from the medical profession of this state.

DR. E. R. HARE: I do not rise to discuss the merits of this plan, but I do want to stand behind Dr. Head tonight, and say just a word with reference to what he has said. I feel that the men who are behind this plan and are endeavoring to bring it to a focus, are honest in what they are doing. I think the opponents of this plan grant that every man who favors it is honest in his opinion. If that be the case I think it is highly unfair that it should be reported about, as it has been, that the men who oppose the proposition are unfair in their attitude toward it. The report has come to me that it was jealousy that moved them to oppose this plan, and I wish to say that I believe that the men who propose this proposition are fair, and the men opposed to it grant that they are fair; and therefore it is only just that those who propose it should admit the same thing in those who oppose it. There is no jealousy. All of the men who are opposing it are not suffering for salary. They are doing well so far as income goes. There is no reason why they should be jealous, but they are honest in their opposition. They have the interests of the University at heart just as much as those who propose the change at this time.

DR. H. A. COHEN: The discussion tonight sounds like a quarrel between a parent and his child. There can be no question but that the appeal just made by Dr. Head, as one of the children of the University, should have been granted, because it makes for harmony. As it is very evident that most of the profession are opposed to the plan, he asks only for delay and reconsideration that an irreparable wrong may be avoided. It seems impossible that Dr. Lyons voices the true spirit of the alma mater to refuse it.

The discussion shows a great difference of opinion between those associated with the University and those not officially connected with it, but it does not necessarily follow that those of us not directly connected with the University are not as loyal to its best interests as those who are. Nor are they necessarily jealous. I feel, together with those who have spoken tonight, a great love for my State and University. All of us have the best interests of the University at heart, and all of us wish to see the University reach the heights at which it is aiming. But it is my mature conviction that

to reach such heights it is not only unnecessary, but wrong, to carry out the extensive changes suggested.

Why the necessity for per-diem beds and fees for full-time professors? Whom does it benefit and whom does it harm? Surely, the poor will not be benefited, nor the University, nor the profession. And as it will eventually mean confining the medical work of the state to two places,—a clinic for the poor on the Campus and another, more remunerative clinic at Rochester, Rochester alone receives the benefit. I am sure it is not the wish of the parent institution to thus annihilate its own children, nor can it be the intent of the State to knowingly subsidize its great medical institution to the gain and perpetuation of a private corporation.

As to full-time professors receiving fees: It is a matter of great disappointment to learn that the medical faculty with all the money that the State has given, and all its scientific equipment, has not been able to develop efficient professors by this time. If that admission remains a fact, however, and more professors are needed, why seek elsewhere with a promise of fees when there are men in the state the equal of any in the country, ready and willing to serve their University as they would serve their country. I was told the other night that at the Henry Ford factory they do not employ skilled labor, but just ordinary men, and in time, with training, they develop into good mechanics. At the institution at Rochester, the staff, with the exception of a few men, when first employed were average men, and received only average salaries. With the training gained at that Clinic, some have become professors. If the institution at Rochester can develop its own professors without allowing them to accept fees, it appears to me the medical school here ought to do likewise. To seek elsewhere for professors may be good business for Rochester, but the State University does not need that kind of advertising. As a matter of fact there is no such personage possible as a full-time professor with fees, for once he gets a fee he ceases to be the professor and goes forever on a hunt for more fees.

To enact the program as outlined would not help the poor, would be an injustice to the profession of the state, and would tend to perpetuate a private institution. If a hospital for the poor is needed the State should support that hospital.

DR. A. H. PARKS: I rise to present a motion that this assembly request the honorable committee of the Civic and Commerce Association to continue its study of the subject before them until after the State Medical Meeting, and thereafter as long as it may be necessary to obtain a crystallized sentiment among the profession in the Twin Cities and in the entire state.

That is the motion. I want to add this remark as a reason for the motion, that it is true that the men who are on the Faculty of the University of Minnesota and the men who are off the Faculty of the University, if they wish for a great University of Minnesota, can get it only through one method, and that is through the education and through the support of the physicians in the State of Minnesota, and they reach the general public through the physicians. You will find that in no other way can funds be obtained, and if any body of men attempts to carry forward a plan of this sort on top of the plan that was pulled off a year ago against the sentiment of the profession in the Twin Cities and

the State of Minnesota, it does not speak well for the future outcome of the University that we love; therefore, I present this motion and hope it will be favorably considered.

Motion was seconded, and carried.

DR. SWEETSER: I wish before we adjourn that we express appreciation to this committee for their presence here and what they have had to say, that we thank them cordially for their presence evidencing an effort to learn the sentiment of the medical profession at least in this city. I personally wish to express appreciation of their presence.

The motion was seconded, and rising vote of thanks given.

The meeting adjourned at 11:20.

#### PRELIMINARY REPORT OF THE COMMITTEE OF THE C. AND C. ASSOCIATION

Preliminary Report of the Committee on Benevolent Associations of the Minneapolis Civic & Commerce Association, regarding a movement to secure a larger and more varied hospital clinic for medical students at the University of Minnesota.

##### 1

The Medical School of the University of Minnesota requested the Minneapolis Civic & Commerce Association to make an investigation prior to endorsing a movement to secure a larger and more varied hospital clinic for its students. The matter was referred to the Committee on Benevolent Associations which appointed a sub-committee to take it under consideration. A considerable number of meetings were held, several consisting of conferences with representatives of the University, with representatives of local hospitals, and with a number of leading local physicians. A statement of the whole plan, together with a questionnaire, was sent two hundred prominent physicians in the state for the purpose of ascertaining their opinion, and the opinion of ten of the leading medical educators in the country was obtained. The following preliminary report is presented as embodying the judgment of the sub-committee.

According to the information furnished us, the Medical School has reached the limit of its capacity for undergraduates with its present clinical resources. On its recommendation, the Regents have placed a limit of eighty on the number who will be permitted to register in the in-coming class this fall, which means that a considerable number will have to be excluded until the opportunities for clinical work can be increased. (Up to this time, September 20th, 116 requests for admission have been received.)

The present Elliott Memorial Hospital provides 200 beds, which are used exclusively and necessarily under the terms of the gift, for free cases referred to the Hospital by physicians throughout the state as needing and deserving free medical care. The special committee studying the question of the number of beds required to complete the hospital system so as to provide for the clinical needs of the Medical School, has placed the total number as 555, distributed as follows:

##### 2

Hospital extension needed:

In surgery, including surgical specialties..... 75  
In medicine, including medical specialties..... 75

In obstetrics and gynecology..... 75  
In diseases of children..... 40  
In contagious infirmary ..... 50  
In psychopathic infirmary ..... 40

Total ..... 355  
Elliott Memorial Hospital, present number of beds 200

Total ..... 555

Such a hospital system would involve the addition of a building for a nurses' home, enlargement of the present service building, and perhaps also an administration building. The estimated cost of the new buildings is \$575,000 to \$700,000, to which must be added approximately \$190,000 per year for maintenance over the \$85,000 now received from the state. It is believed that the above would provide the necessary clinical facilities for several years and perhaps for as many students as can be efficiently handled in this institution.

It has been pointed out by the Administrative Board of the Medical School that completion of the University Hospital System by the state as a free patient hospital is barred for a long time to come by the limits of appropriations which the state can be expected for the present to provide. This is not a mere matter of legislative reluctance. It is a question of conflict with many other interests which clamor for and must have support in a young and rapidly growing state university. For similar reasons, there appears to be no possibility of securing the maintenance fund of approximately \$275,000 per year which such a completed free hospital system would require.

The Board further points out that the School faces the alternative of arrested development or of finding other means of securing the necessary new buildings and maintenance. It believes that some of the needed additions could be obtained by appealing to persons of large means who might be willing to furnish funds for a new building or pavilion as Dr. and Mrs. Elliott so generously did for the present building. Its members are willing to put their faith to the test of actual effort to enlist such support if after careful consideration it shall be deemed wise.

##### 3

After securing the gift of the buildings, there would still remain the problem of *maintenance*. The Board points out that for reasons given above, the securing of any large portion of this from the state seems, at least for a number of years, to be prohibited. How, then, can such additions to the hospital system be supported and the needed clinical opportunities afforded? To meet this problem, the Board of Administration has asked that consideration be given to the taking of patients in the new buildings who would pay the full per diem cost of maintenance. These patients would consist of those referred to the University Hospital by physicians throughout the state for the purpose of investigation, diagnosis or treatment.

The Medical School also desires to secure the services of additional full time instructors. The Administrative Board points out that it faces the same difficulty in securing and retaining the highest type of clinical teacher that it does in securing additional clinical facilities and maintenance, namely, the lack of sufficient funds with which to command the entire time of the best men. Moreover, even if the means were avail-



able with which to secure the full time teachers, the best interests of medical education demand that patients for clinical purposes be available from that social group that is able to pay as well as from those less fortunate. It is, therefore, suggested that in order to secure these full time teachers as well as the varied clinic, such teachers be allowed to take upon the University Campus only, a limited number of pay patients for consultation purposes. The estimated number of such patients is as follows:

In medicine, including nervous and mental diseases	25
In surgery .....	20
In surgical specialties .....	5
In pediatrics .....	15
In obstetrics and gynecology .....	15
Or total of .....	80

Our Committee on Benevolent Associations is deeply sympathetic with the idea of developing in connection with the University of Minnesota a Medical School equipped with clinical facilities adequate to place its graduates at the very forefront of their profession. The citizens of Minnesota are justly proud of the high rank

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their institution has taken among the medical schools of the country, and they will wish to see furnished every facility necessary to maintain the high standard. No argument is necessary to show that without adequate clinical opportunities, the University cannot expect to send out as graduates the kind of trained men to be our physicians and surgeons that the people of Minnesota and the whole Northwest demand. The problem is, how can the University provide clinical facilities adequate to the needs of an increasing number of students?

Taking up the questions raised in the communication received from the Medical School, we submit the following statements and recommendations:

1. We approve the completion of the Hospital system planned for the University as rapidly as possible. The benefits from such a hospital system are many and obvious. It will not only help the University and student by providing the larger and more varied clinic necessary for giving the best training to the graduates from the Medical School, thus affecting the future health and happiness in thousands of our homes, but it will also make available hospital facilities for many who will need them, both in the University body and throughout the state of Minnesota.

2. We recognize that the needs of a university as young as that of Minnesota and which, nevertheless, has grown until it stands fourth in the total number of students which it reaches annually, are so great in its many departments as to exclude for a long time to come any expectation that the state will be able to provide for the completion of such a university hospital system as is needed. Therefore, we heartily approve the proposed effort to supplement such funds as the state can give by an appeal to those who welcome the opportunity to use their means to alleviate suffering and promote the welfare of their fellows. We regard making possible the rounding out of the complete hospital system so well begun through the generosity of Dr. and Mrs. Elliott as one of the most helpful gifts that it would be possible for anyone to make.

3. Until such time as a larger amount can be obtained from the state, or income from endowment is available, the enlarged hospital must be in part self-supporting. We can see no objection to meeting this problem of hospital maintenance by taking patients who will pay the full per diem cost. The taking of per diem patients in state hospitals is extensively used elsewhere and what little objection there is appears to be based upon its improper organization. There seems to be no dissent as to the advantages of a socially mixed clinic. Moreover, many as there are of those in any com-

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munity unable to make any payment for hospital service, there must be equally many, perhaps more, able to pay a per diem charge but unable to pay physician's fees. These people do not wish to be considered charity cases and are among the most deserving in the community. They are worthy of the best medical care.

We recommend:

- (a) That per diem patients be permitted.
- (b) That efforts be made to secure maintenance funds from the state or elsewhere so that the number of free beds shall never be less than half.
- (c) The payment of full per diem based on the estimated cost, and that the state be asked to guarantee the maintenance fund until actual cost per diem is ascertained.
- (d) That patients be restricted to those referred by physicians as long as beds are in demand for those so referred.
- (e) That patients be restricted to those referred by physicians of Minnesota so long as there is a demand for all the facilities of the Hospital by such state physicians. In case there is room for others, that preference be given to patients referred by graduates of the University practicing outside the state, all patients from outside of Minnesota to pay at least the per diem cost.
- (f) That efforts be made to obtain from the legislature a law by which a county or community maintaining no hospital of its own may pay the per diem cost for patients at the State University Hospital.

4. There appears to be a strong sentiment throughout the country in favor of the "full-time" instructor in medical schools. This plan has received the support of the Rockefeller Board, which has made grants to certain schools for the purpose of enabling them to secure the services of full time clinical teachers. We think the management of the University Minnesota Medical School is justified in its desire to try out the full time plan. It is obvious, however, that the best type of clinical teacher cannot be secured or retained for any salary that the state can be expected to pay for some time to come. No one will dispute that the best clinical teachers to be had are none too good for the training of those on whom not only our health but our lives even, and those of our children, are to depend. Until the state makes it possible for the University to command the services of the best men, we believe the Administrative Board of the Medical School and the Regents of the University are justified in trying to discover other reasonable methods by which such services can be secured. It is, therefore, proposed to sup-

## 6

6. We think the management of the University Minnesota Medical School is justified in its desire to try out the full time plan. It is obvious, however, that the best type of clinical teacher cannot be secured or retained for any salary that the state can be expected to pay for some time to come. No one will dispute that the best clinical teachers to be had are none too good for the training of those on whom not only our health but our lives even, and those of our children, are to depend. Until the state makes it possible for the University to command the services of the best men, we believe the Administrative Board of the Medical School and the Regents of the University are justified in trying to discover other reasonable methods by which such services can be secured. It is, therefore, proposed to sup-



plement the salary which the state is at present able to pay these full time teachers by permitting them to take on the University Campus a limited number of patients who can pay adequate hospital charges and the usual fees of consultants. Our committee has spent much time in giving most careful consideration to this phase of the problem confronting the Medical School. We are convinced that the taking of pay patients under proper restrictions can be made to serve a valuable purpose and that there will be no concern lest it infringe on the right of others when properly safeguarded and fully understood. These pay patients will be available for clinical use and will afford the student a valuable experience which he could not otherwise gain. These clinical teachers will doubtless become recognized authorities in their special fields and their services will be sought in difficult cases by the medical profession throughout the state and from neighboring states. These difficult and unusual cases will, not infrequently, prove to be the most instructive cases in research and in teaching.

We regard the careful working out of the limitations under which fees will be accepted from pay patients as the most critical point in the whole plan. Without adequate safeguards the system would be capable of abuse and unless the basis for limitation is sound and clear would be apt to result in criticism both within and without the University. The attitude of the representatives of the University with whom we have conferred

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has been that of desiring the best possible arrangement with fairness to all and favor to none. We believe that this can be done. We therefore recommend:

(a) That the plan of having a limited number of full time clinical teachers be given a thorough trial for the purpose of determining whether it possesses any decided advantages over the present methods.

(b) That efforts be made to obtain funds from any available source for the purpose of securing the services of such full time teachers. If funds cannot otherwise be obtained, we recommend that provision be made for securing teachers by supplementing such salaries as the state can pay with fees from patients.

(c) That services furnished pay-patients be limited to those who can be cared for on the University Campus.

(d) That the number of beds provided for such pay-patients do not exceed fifteen per cent of the total number in the hospital.

(e) That all such pay-patients be available for clinical purposes on the same basis as all other patients.

(f) That the maximum amount of salary to be obtained by any full time teacher from fees in any given period be determined in advance and that the total of fees accepted by such full time teacher be limited to the amount agreed upon regardless of the number of beds previously placed at his disposal.

(g) That provision be made by which the number of beds at the disposal of any full time teacher may be adjusted at the beginning of each year or at any time during the year for the purpose of

better apportioning such beds according to the income received and required.

(h) That all full time teachers be required to file monthly reports of all fees received, which reports shall be available for the Administrative Board of the Medical School and the Regents of the University for use in making such adjustments in allotting beds for private patients as may be deemed necessary to secure the fairest and most equitable arrangement.

The whole import of these recommendations is that a medium shall be provided in the way of a committee or otherwise which shall deal with such absolute frankness and fairness in making any of the necessary delicate adjustments as to lift the scheme above criticism or reproach.

## 8

5. As to the possibility of being able to secure the necessary patients after the hospital system is completed, we think there can be little doubt, located as it will be, in a territory growing as fast as the Northwest is doing. Because of the rapidly increasing population in this territory, the taking of less than a hundred pay patients at the University Hospital can scarcely have an appreciable effect upon the work of the many private and semi-public hospitals. The provision for per diem patients to the extent that it draws patients from other public or semi-public hospitals will serve as an aid rather than a handicap to such hospitals by releasing room now occupied by patients cared for at a loss for use by those able to pay more. We believe there will be an increasing number of physicians throughout the Northwest who will wish to get expert help with difficult cases and who will welcome the opportunity to occasionally refer such to the University Hospital for the purpose of investigation, diagnosis or treatment.

6. We recommend the development of a department, the duty of which will be to ascertain the relative ability of the person seeking treatment to pay for the services received. While always giving a patient the benefit of any doubt, great care should be exercised in insuring that those who are financially able to pay are not permitted to crowd out those less fortunate or themselves suffer the degenerating effect of pauperization. A properly organized department should be able to ascertain who should be accepted as pay patients or referred to hospitals accepting pay patients. We seriously question, however, the advisability of making the Social Service Department the investigating agency for doing this work. The essential character of the Social Service Department is of an entirely different nature from the running of a credit rating bureau and, in our opinion, its proper functions should not be usurped or handicapped by having work loaded upon it which might better be developed elsewhere.

## 9

We are not unmindful that perhaps something can and ought to be done to make more available for the uses of the Medical School the clinical material in our municipal and county hospitals. We are willing to assist in any way we can to accomplish this end. We are convinced, however, that the fullest possible use of this material will only enable it to supplement and in no important degree to lessen the necessity for a complete hospital system located close to students and teachers and under the complete control of the University.

The splendid work already done in the University Medical School under severe handicaps has had the effect of winning for it a place among the leading medical schools of the country. We most heartily commend the efforts of those who, while maintaining the standards of the past and present, would push forward to something even better. In their efforts to accomplish this end, we believe they are deserving of and will receive the earnest support of any who can render assistance.

September 20, 1916.

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QUESTIONNAIRE—SENT BY THE COMMITTEE  
TO TWO HUNDRED PHYSICIANS  
IN MINNESOTA

If unfavorable to any of the following, please state your objection and be sure to follow it with your suggestion as to what should be done.

1. Do you favor the enlargement of the clinical facilities of the Medical School at the State University?
2. Do you favor the completion of the proposed hospital system?
3. Do you favor supplementing such funds as may be secured from the state by efforts to obtain gifts for new buildings from private individuals?
4. Do you favor meeting maintenance expense in new buildings by the taking of per diem patients until other funds are available?
5. Do you favor supplementing, as may be necessary, the inadequate salaries which the state would pay, by permitting full time clinical teachers to accept fees from a strictly limited number of patients who may be referred to them for investigation, diagnosis or treatment on the University Campus only, during such trial period at least as will determine the relative advantages of part time and full time clinical teachers?

RESOLUTION DISCUSSED AND UNANIMOUSLY  
REJECTED BY THE MINNESOTA STATE  
MEDICAL ASSOCIATION

WHEREAS, the Medical Department of the State University has under consideration a plan whereby full-time clinical teachers on the Faculty shall be allowed the privilege of receiving pay for the diagnosis, treatment, and care of private patients upon the University Campus, therefore,

We, the members of the Minnesota State Medical Association, assembled in our annual meeting, hereby express our firm conviction that this attempt of the Medical School of the State University to unite public service and private practice, is unsound in principle, bad public policy, and contrary to the established ideals upon which the Medical School was founded.

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RESOLUTION DISCUSSED AND REJECTED BY  
A VOTE OF 63 TO 5, BY THE ALUMNI ASSO-  
CIATION OF THE MEDICAL SCHOOL OF  
THE UNIVERSITY OF MINNESOTA

WHEREAS, the Medical Department of the State University has under consideration a plan whereby full-time medical teachers in the Faculty shall be allowed the privilege of receiving pay for the diagnosis, treatment, and care of private patients upon the University Campus, therefore,

We, the members of the Alumni Association of the Medical Department, assembled at our annual meeting, hereby express our firm conviction that this attempt of the State, through its Medical School, to unite public service and private practice, is unsound in principle, bad public policy, and contrary to the established ideals upon which the Medical School was founded.

We, the Alumni, hereby pledge ourselves to loyally support the administration of the University and the Medical School in any efforts that may be made to secure appropriations for the Medical School from the State legislature or private donations.

# THE JOURNAL-LANCET

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and Official Organ of the

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NOVEMBER 1, 1916

## THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA

The sentiment of the medical men of Minnesota concerning the things recently done, and now planned to be done, by the School, is unmistakably exhibited in the reports printed elsewhere in this issue; and such sentiment was even more clearly exhibited by the private talk of the physicians attending the meeting of the State Medical Association.

This sentiment takes a threefold form, and we shall endeavor to treat it in this threefold aspect.

### AN ANALYSIS OF THE REPORT AND QUESTIONNAIRE OF THE COMMITTEE OF THE MINNEAPOLIS CIVIC AND COMMERCE ASSOCIATION

A brief analysis of these documents may serve to elucidate the University Hospital plan as set forth therein. We think it fair to assume that all fundamental statements made in the Report and the Questionnaire concerning the plan are endorsed by the University.

As there is no opposition whatever in the medical profession to seeking private donations for the erection of buildings, memorial or otherwise, or for maintenance of the Hospital, we shall pass over this part of the Report, and shall deal with

only the other fundamental principles of the plan:

1. "The Medical School has reached the limit of its capacity for undergraduates with its present clinical resources." (P. 1 of the Report.)

Does this mean that the clinical material in the municipal hospitals of the Twin Cities is unavailable, inadequate in quantity, or not suitable because of its character (social) or its location?

If claimed to be unavailable, it can safely be affirmed that it is unavailable because earnest and proper efforts have not been made to obtain it, or, in a large measure, because antagonisms, on the part of physicians controlling such material, engendered before this plan was formed, prevent its use. The Report itself (p. 9) says something ought to be done to make this material more available, and the committee's assistance in this direction is offered.

2. The State cannot be expected to provide the funds either for new buildings or for hospital maintenance. (Pp. 2 and 3.)

As this inability is admitted to be "not a matter of legislative reluctance," it must be a matter of State poverty; and the Report asserts that such is the case. The State's almost unprecedented wealth, present and prospective, contradicts this assertion, which, moreover, is not a conclusion from any failure to obtain State aid for the purposes named, for such aid has not been sought, since this plan was formulated.

3. "The best interests of medical education demand that patients for clinical purposes be available from that social group that is able to pay, as well as from those less fortunate." (P. 2.)

In other words, if this plan is carried out, the great State of Minnesota will advertise to the world that its Medical School furnishes its students clinical material from *three social groups*,—the poor, the near-poor, and the rich, such groups constituting the free patients, the per-diem patients, and the pay patients admitted to the Hospital; and this grouping is to be made apparently by "a properly organized department" of laymen (p. 8). But we can foresee trouble here. If the lay body ("credit-rating bureau"—p. 8) says a patient is a per-diem patient, does this automatically make him of that "social group" which the medical staff deems essential for teaching purposes?

4. "We recommend that all such pay patients be available for clinical purposes on the same basis as all other patients" (p. 7), and "that



efforts be made to obtain from the legislature a law by which a county or community maintaining no hospital may pay the per-diem cost for patients at the State University Hospital" (p. 5).

We put these recommendations in juxtaposition to show how little thought seems to have been given to this plan, which the medical profession of Minnesota and the Civic and Commerce Association of Minneapolis have been asked to endorse.

Is it probable that patients who seek and pay for the high-priced services of eminent specialists, will submit themselves, except in rare instances, to clinical uses in a medical college? Is it probable that any county or community in Minnesota, even after being given legislative permission ("may pay"), which, surely, it does not need, will pay the State "the per-diem cost for patients" (the near-poor, i. e., the second social group) at the State Hospital, which such county or community helps to maintain? If, perchance, this language was intended to be "shall pay," can anyone imagine the storm of protest such proposed legislation would raise?

5. No. 4 of the Questionnaire clearly implies that per-diem patients are to be taken only "until other funds are available."

Now, we ask, in all seriousness, what will be done with this class of patients, said to be necessary for clinical teaching, when "other funds" become abundant, as they surely will some day from the enormously large school fund of the State. Is this "social group" then to be abolished? Are patients of this "social group" to be accepted because of their need in clinical teaching or because of the financial aid received from them?

6. No. 5 of the Questionnaire refers to a "trial period" upon which full-time clinical teachers are to be engaged in order to test the relative value of clinical teachers on full time and as now employed.

Do the business men propounding that question, or does the Administrative Board of the Medical School, believe that "the highest type of clinical teacher" (p. 2), a man whose "services will be sought in difficult cases by the medical profession throughout the State and from neighboring states" (p. 6), can be induced to come to the Medical School of the University of Minnesota "to try out the full-time plan" (p. 6), and to do so on a salary of which a large part is to be earned from his pay patients who must become clinical material for medical students?

Is it surprising that the Minnesota State Medical Association voted *unanimously* not to endorse this crude plan? Would the Civic and Commerce Association of Minneapolis endorse and encourage a financial undertaking based upon a plan so indefinite and opposed by men of high standing, and opposed because, in the opinion of such men, the plan ignored vital principles of business, and was otherwise impracticable?

#### OPINIONS EXPRESSED AT THE HENNEPIN COUNTY AND STATE ASSOCIATION MEETINGS

It has been rightly assumed that freedom of speech and thought in a state university is a principle not wisely to be ignored, especially while such privilege is honestly used. When its purpose is for the enlightenment to prevent false steps in policy which, once hastily taken, cannot easily be retraced, and when members of the Faculty, with an honest intent, voice a protest against uniting with a state teaching institution a private and commercial enterprise, and such union threatens to breed trouble or at least to bring about a division in work, and necessarily to detract from the efficiency of the School, then the principle of free speech should be held inviolable.

One of the speakers at the Hennepin County Society meeting referred to the fact, which is well established, that the old Faculty freely discussed their various differences, and then voted as to what was best for the school; and what the voters decided, the entire Faculty body united to carry out.

The next issue is the principle which has been so firmly established between the Medical School and the State as regards the relation of the University Hospital to the State's poor. When the donation for the Elliott Memorial Hospital was accepted, it was accepted with the definite understanding that the sick poor of Minnesota should be cared for without expense. One of the speakers at the State Medical Association referred to the fact that if a principle was wrong yesterday, it is wrong today, and will be wrong tomorrow; if it was right yesterday, it is right today, and will be right tomorrow, and consequently he could not see how a right principle could be changed over night.

To adopt the new plan in the face of such opposition as has clearly developed in the profession, is to further divide the profession. It is already in evidence, it is manifested throughout the state, it was discussed by men from the country from various parts of the state at the recent

State Association meeting, and almost without exception the proposed plan of the University was condemned, and its condemnation was on the ground that the principle was once firmly established and that a violation of it at the present time would simply increase the hostility between the University faction and the faction outside.

As the Medical Alumni do not approve the plan, the Board and the Regents may well pause before they adopt any further radical measures. The per-diem patient business is very dangerous in a state hospital. As a matter of fact, the per-diem patient proposition is one which should be taken up by the State and regulated, and its cost paid by the counties; but when one stops to reflect how large a number of patients are sent to the University Hospital from Hennepin County, the country legislator and the country doctor will strenuously object to a per-diem proposition. That is really a benefit to only one or two large counties, which furnish free-service benefits alike to the poor of all counties.

The plan to have private pay patients on the University Campus cannot be too strongly condemned. For many years only a few will be benefited by the plan, but an abuse of it is quite likely to grow, and before it can be rescinded, the pay-patient proposition will be a nightmare to the medical profession. When the Administrative Board claims that their plans will prevent abuse or special privilege they are considering the proposition only from a narrow point of view, for it has been demonstrated time and again that, given an opportunity, some men will abuse any privilege not so surrounded that opportunity cannot offer temptation. Human nature still insists upon what it thinks its own individual rights; and if the fee-splitting system in the country has not been broken up by the best educational efforts of all the better classes of the profession, how will it be possible to prevent abuses in the pay-patient department of the University Hospital?

We fear the Administrative Board is making the greatest mistake in the life of the University Medical School.

"THE UNIVERSITY AND THE PROFESSION SPLIT,  
AND THEY NEVER HAVE GOTTEN ANYWHERE"

It is now feared by many that a fundamentally wrong step has been taken, and taken at the wrong time—rather, may it be said, not one wrong step, but several wrong steps, such as the reorganization of the Faculty of the School in a manner to alienate men who largely shared in creating and upbuilding the School; the affiliation

with a private clinic, likewise done in a manner to alienate other strong friends, both lay and professional; and the present proposed step, which violates fundamental principles, as has been set forth by men within the School, as well as without it.

In order that the Regents of the University, the Administrative Board of the Medical School, the members of the forthcoming legislature, the entire medical profession of Minnesota, and, lastly, the people of the state, may be fully informed upon the subject, we publish in this issue the joint discussion of the plan by representatives of the Administrative Board of the Medical School, of the Civic and Commerce Association of Minneapolis, and of the Hennepin County Medical Society; and we have added to the above the preliminary Report and the Questionnaire of the committee of the Civic and Commerce Association, the resolution passed almost unanimously by the Medical Alumni of the University, and the resolution passed unanimously by the Minnesota State Medical Association, which resolutions were considered and acted upon at the annual meetings of these organizations held subsequently to the special meeting of the Hennepin County Society.

If these warnings are not heeded by the Regents of the University, Dr. Rowntree's language will soon be applicable to the Twin Cities:

*"Five years ago St. Louis promised to become a great medical center. The University and the profession split, and they never have gotten anywhere."*

Such is the disaster that threatens a medical school universally acknowledged to be of the highest standard and so rated (A+) by the Rockefeller Foundation for Medical Research. It is so threatened by a change needed, according to Dr. Rowntree's statement, for the reason that *the School has not been productive of results in medical research*, but is to be made prolific in this direction by new men and new methods.

#### THE MINNESOTA STATE MEETING

The meeting of the Minnesota State Medical Association on the eleventh, twelfth, and thirteenth of October, was seemingly one of the most successful and important meetings ever held by the Association. The registration (four hundred and sixty-one) was very large, and all sessions were very well attended, the Radisson Hotel providing ample room for most of the sessions. There was some crowding in the section of medi-

cine, but otherwise everything went off in good order. The dinner, which was held on Thursday evening, was attended by nearly three hundred. No intoxicating beverages were found on the table, but the Welch Grape Juice Company provided a very mild and delicious form of food and drink. The luncheon on Thursday was a cafeteria affair, in which every man selected from long tables what he liked best, and then sat down on the roof garden to enjoy a social visit with his friends and neighbors. During the evening Dr. McArthur, of Chicago, read a paper on "A New Stomach Operation," and Dr. Cannon, of Boston, read a paper on "The Effect of Emotions Upon the Secretion of Glands."

The surgical section was, as usual, the most striking and brilliant in its efforts, several papers being illustrated by many lantern slides and moving-pictures, all wholly and entirely surgical. The attendance at times practically taxed the capacity of the large room in which the sessions were held.

The House of Delegates met on the afternoon of the eleventh, and transacted its business in very prompt order. They met again on Friday morning, the thirteenth, and the business of that forenoon was evidently much more interesting than that of the preceding day. There was discussed an amendment to the constitution relative to medical defense, in which an x-ray of all fractures was demanded before the Association would take up a malpractice suit. This part of the amendment was voted down as being a hardship on the men in the country and upon all who were far from an x-ray machine. The Secretary's report showed that a large sum of money, somewhat over three thousand dollars, had been expended during the current year, and many speculated as to the advisability of continuing the defense feature. Nothing was done, however, and the defense plan will be retained, with the possibility of an increase in fees or an appropriation from the general fund, which would not be wise. California has increased its defense dues to \$5 per member, and it seems quite possible that this may be done later in the Minnesota Association. The general sentiment was that, if we are going to have a defense, let's have a complete one, not only as to the costs of a suit, but as to the payment of verdicts.

The next thing in order was the discussion of the Association's medical journal. This was a lively, but an honest, effort on the part of the Delegates to get at the best solution of this

problem; and there were no unnecessary criticisms, simply straight proposals, with no attempt to make any change at this time. It was finally voted that a committee of five be appointed by the President, to take up the matter in details, go over the whole situation, and advise as to the future journal for the Association.

The discussion of the University Hospital plan will appear in our next issue, when the stenographer's report of the transactions of the House of Delegates will be printed in full.

Dr. Little made an admirable presiding officer, holding the members in all discussions within reasonable parliamentary bounds, and doing so without irritation. No man unexperienced in the work of presiding and without a full knowledge of parliamentary law can expedite the work of men likewise unfamiliar with formal parliamentary proceedings unless aided by an experienced secretary. Dr. Little was so aided by Dr. McDavitt, and also by our genial ex-treasurer, Dr. Richard J. Hill.

Dr. Henry Workman, of Tracy, was elected president. Almost everyone in the state knows Dr. Workman, and feels that the Association honors itself by making him president.

The next meeting will be held at St. Paul sometime in October, 1917.

## NEWS ITEMS

Dr. Rowland Gilmore has returned to Bemidji from Boston.

Dr. W. S. Anderson, formerly of Warren, has moved to Grand Forks, N. D.

A stock company has been formed in Minot, N. D., to build a hospital, to cost \$250,000.

Dr. P. G. Bennion, of St. Paul, has completed several weeks of postgraduate work in Chicago.

Dr. J. V. Johnson, who has practiced in Eveleth for the past fifteen years, has moved to Duluth.

Dr. E. S. O'Hare, formerly of Minneapolis, but for several months of DeGraff, has moved to Jordan.

The Great Western Railway Surgeons' Association will hold its 1917 meeting in Red Wing next July.

Dr. H. M. Blegen, of Oslo, has moved to Warren and formed a partnership with Dr. Baldwin Borreson, of that place.

The St. Raphael's Hospital Association has



purchased twenty acres of ground at St. Cloud, upon which a hospital costing \$150,000 will be erected.

A course in Red Cross nursing is being given at the Ramsey County Medical Society rooms. Three lectures a week for twenty weeks constitute the course.

Dr. A. B. Ancker's portrait has been painted by Robert Hale, and will be hung in the County and City Hospital of St. Paul. It will be paid for by subscription.

The number of Northwestern surgeons in attendance upon the annual meeting of the Congress of American Surgeons in Philadelphia last week, was very large.

Dr. James B. Gould, of Minneapolis, died on Oct. 17th, at the age of 56. He was a graduate of the University of Minnesota and of Jefferson Medical College, Philadelphia.

Dr. G. M. Williamson, of Grand Forks, N. D., has been named a member of the national committee on uniform laws and state regulations of the Federation of Medical Boards of the United States.

The Hennepin County Medical Society has installed in its library a bulletin board giving a list of the clinics to be held in the various Minneapolis hospitals. This should prove of great convenience to all doctors visiting in the city.

A thirty-five bed hospital has been opened at Morgan Park, Duluth, to care for employes of the steel and cement plants, as well as those of the Duluth, Messabe & Northern Railroad and residents of the Park. Dr. W. H. Magie is in charge.

The Nurses' Training-School of the Winona General Hospital has been accredited by the Minnesota State Board of Nurse Examiners without affiliation with any other hospital. In the future the course will cover three years instead of two, and will be completed at the school.

Dr. Owen J. Evans, of Minneapolis, died last month at the age of 76. Dr. Evans was the last surviving charter member of both the Hennepin County Medical Society and of the Minnesota State Medical Association. He was graduated from the Albany Medical College, and came to Minneapolis in 1865.

The Park Region District and County Society met last month in Fergus Falls, with a fair attendance. Papers were read as follows: a paper on "Eclampsia," by Dr. M. B. Ruud,

Alexandria; and a paper on "Eighty-three Consecutive Operations for Appendicitis," by Dr. P. Boysen, Pelican Rapids. A full discussion followed each paper.

The Lake Preston Society of South Dakota met at Lake Preston last month. Two papers were read by special invitation, one by Dr. Goldie Zimmerman, of Sioux Falls, on "Infantile Paralysis," and one by Dr. J. L. Foxton, superintendent of the Beadle County Board of Health. Dr. D. L. Scanlon, of Volga, read a paper on "Acute Appendicitis."

The Minnesota State Board of Health, at its meeting last month, passed a regulation requiring that the eyes of every new-born child be treated with a one per cent solution of silver nitrate. The regulation should be strictly observed by every physician. Failure to act upon it might lead to a disastrous damage suit. Midwives are required to call a physician in every case when inflammation of a child's eyes appears.

The tuberculosis workers of Minnesota organized an association following the Public Health meeting in Minneapolis last month. Dr. A. T. Laird, of Nopeming, the St. Louis County Sanatorium, was chosen chairman, and Dr. I. J. Murphy, of the Minnesota Public Health Association, was elected secretary-treasurer. The organization is to be known as the Sanatorium Section of the Minnesota Public Health Association.

The St. Louis County Society celebrated its thirtieth birthday last month. Sixty members were present, including four of the six charter members. These four charter members were Drs. W. H. Magie, Charles McComb, F. O. Sherwin, and J. J. Eklund. The officers elected at the meeting were Dr. F. A. Grawn, of Duluth, president; Dr. O. V. Parker, of Ely, vice president; and Dr. C. H. Shroeder, of Duluth, secretary-treasurer.

The program for the meeting of the Hennepin County Medical Society to be held November 6 is as follows: "Teaching of War Surgery," by Dr. J. Frank Corbett; "Prolapsus Uteri—A New Operation," by Dr. A. E. Benjamin; "The Grave Danger of Interference in Obstetrics," by Dr. R. T. La Vake. The next five Wednesday noon meetings will be devoted to the study of Nephritis, led by Drs. M. Barron, C. R. Drake, R. T. Rizer, J. M. Lajoie, and E. L. Gardner.

The Southern Minnesota Association will meet in Mankato on December 4th and 5th. The meet-

ing on Monday (December 4th) will be only in the evening. Two papers will be read by guests of the Association from outside the state. Dr. George W. Crile, of Cleveland, will speak on "The Graded Surgical Operation," and Dr. Albert J. Ochsner, of Chicago, will speak on "Carcinoma of the Breast" and "Treatment of Hernias in Children." The full program will be published in our next issue.

The following officers were elected at the meeting of the Minnesota State Medical Association: President, Dr. H. M. Workman, Tracy; first vice-president, Dr. J. H. Adair, Owatonna; second vice-president, D. A. C. Rogers, Faribault; third vice-president, Dr. H. M. Johnson, Dawson; secretary, Dr. Thomas McDavitt, St. Paul; treasurer, Dr. Earl R. Hare, Minneapolis; councilors, Dr. J. A. Millspaugh, Little Falls; Dr. W. A. Dennis, St. Paul; Dr. C. E. Persons, Marshall; delegates to the A. M. A., Dr. Harry P. Ritchie, St. Paul; alternate, Dr. W. H. Magie, Duluth. The next meeting will be held in St. Paul, in October, 1917.

#### APPARATUS FOR SALE

A 12-inch x-ray coil, in first-class condition, with rheostat, and electrolytic interrupter and Scheidel-Western Rectifier if desired. Price, \$75.00 cash. Address 413, care of this office.

#### EXPERT VALUATION

Physicians who desire the services of a man experienced in the valuation of office furniture, instruments, surgical, x-ray, and other electrical outfits, libraries, etc., may address 400, care of this office.

#### POSITION WANTED BY A STENOGRAPHER AND BOOKKEEPER

We have registered with us an exceptionally bright lady stenographer and bookkeeper. Experience, 5 years law, 2½ years at Battle Creek Sanitarium, 1 year Mayo Clinic. Address James F. Ells, Business Men's Efficiency Bureau, 902 Plymouth Bldg., Minneapolis, Minn.

#### POSITION WANTED BY A NURSE

A graduate nurse of three years' experience desires a position as office assistant or institutional work. Has had experience as head nurse in hospital, as anesthetist, and as laboratory assistant. Is willing to go out of city. Can give good references. Address 422, care of this office.

#### PRIVATE HOSPITAL FOR SALE

In the best residence district of a city of twenty thousand; three railroads and interurban line. Solid concrete and white-brick four-story building, modern throughout, established ten years, and doing good business; room for seventy patients. Reasons for selling: sickness of doctor and owner. Address 415, care of this office.

#### LOCUM TENENCY WANTED

Beginning Jan. 15th, for any length of time, not to exceed six months, by a regular physician; thirty-one years old; 1915 graduate of A+ school. Will have completed a twelve-months' internship at a large county hospital Dec. 10th. Can give best of reference. Can speak French. Address 418, care of this office.

#### POSITON WANTED

Wanted—Assistantship to surgeon, general practitioner, corporation, or hospital, by physician experienced in all lines of general work. Special training in obstetrics, accident surgery, and in giving anesthetics, good radiographer. Clean habits, will take locum tenency. Best of references. Can come immediately. Address 417, care of this office.

#### FOR SALE

A desirable, attractive 10-room home, 1½ acres of land on Crystal Bay, Lake Minnetonka, with fine shore, large garage and barn, and auxiliary cottage, and gas and water plant. Finely located. A large and desirable medical practice goes with it. Only object of selling is poor health. A desirable place and location for the right man. Address 414, care of this office.

#### DAKOTA PRACTICE FOR SALE

I offer for sale my practice in an eastern South Dakota town of 1,000 population, with lights, water, sewers, and good schools. Mixed population. One competitor, aged 55. Price, \$500, the cost of equipment; no bonus. Best location in the state. South Dakota reciprocates with North Dakota and Minnesota. Large territory. I am leaving the state. Address 412, care of this office.

#### PART OF MINNEAPOLIS OFFICE FOR RENT

Wanted—a dentist or physician to share office on fourth floor of the Physicians & Surgeons' Building, Minneapolis. Rent, \$25, with share office-attendant and telephone. Reception-room is already furnished. Can refer business enough to make it an object for a dentist. Space arranged to suit tenant. Address 421, care of this office.

#### PARTNERSHIP WANTED

I desire to form a partnership with physician and surgeon in city of 10,000 or over in Minnesota. I am twenty-eight years of age and have had two years successful practice. Can do eye, ear, nose, and throat work. Address 419, care of this office.

#### PHYSICIAN WANTED.

A competent physician and surgeon is wanted to take charge of a sanitarium (incorporated) in a Central Minnesota town of 400, located in a rich farming community and a summer resort. One who is not afraid to work and wants to grow with the institution. German preferred. Address 420, care of this office.

#### DOCTOR

Doctor: If you want practical postgraduate work during the fine season in the delightful city, write for particulars. Thirtieth annual session opens September 25, 1916, and closes June 9, 1917. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	7								1				1			
Alexandria	2,681	3,001	9															
Anoka	3,769	3,972	3															
Austin	5,474	6,960	6	1					1									
Barnesville	1,326	1,353	0															
Bemidji	2,183	5,099	9														1	
Benson	1,525	1,677	1															
Blue Earth	2,900	2,319	2															
Brainerd	7,524	8,526	9	1		2										2		
Breckenridge	1,282	1,840	2															
Canby	1,100	1,528	6														1	
Cannon Falls	1,239	1,385	1															
Chaska	2,165	2,050	0															
Chatfield	1,426	1,226	2															
Cloquet	3,074	7,031	6	1														
Crookston	5,359	7,559	14								1					3		
Dawson	962	1,318	3															
Detroit	2,060	2,807	2															
Duluth	52,968	78,466	79	7	3	3	0	1	0	0	1	0	0	1	0	7	0	10
East Grand Forks	2,077	2,533	3															
Ely	3,572	3,572	5											2		1		
Eveleth	2,752	7,036	8		1								1					
Fairmont	3,440	2,958	3															
Faribault	7,868	9,001	9	1														
Fergus Falls	6,072	6,887	20	3		2										2		
Glencoe	1,788	1,788	1	1														
Glenwood	1,116	2,161	1															
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	3															
Hutchinson	2,495	2,368	2													1		
International Falls		1,487	2												2			
Jordan	1,270	1,151	1															
Lake City	3,142	3,142	1															
Le Sueur	1,937	1,755	0															
Little Falls	5,774	6,078	11												1			
Luverne	2,223	2,540	2								1							
Madison	1,336	1,811	2															
Mankato	10,559	10,365	23	3												5		
Marshall	2,088	2,152	3															
Melrose	2,591	2,591	1										1					
Minneapolis	202,718	301,408	350	30	9	9	2	0	1	0	3	0	0	2	8	32	0	4
Montevideo	2,146	3,056	5	1												1		
Montgomery	979	1,267	0															
Moorhead	3,730	4,840	5	2														
Morris	1,934	1,685	1												1			
New Prague	1,223	1,554	3															
New Ulm	5,403	5,648	2															
Northfield	3,210	3,215	1															
Ortonville	1,247	1,774	1					1										
Owatonna	5,561	5,658	11	1												3		
Pipestone	2,536	2,475	0															
Red Lake Falls	1,666	1,666	0															
Red Wing	7,525	9,048	8													1		
Redwood Falls	1,661	1,666	4															
Renville	1,075	1,182	1															
Rochester	6,843	7,844	34	3	1											9		
Rushford	1,100	1,011	1															
St. Charles	1,304	1,159	0															
St. Cloud	8,663	10,600	14	2	1	1												
St. James	2,102	2,102	4															
St. Paul	163,632	214,744	220	17	7	3	1	0	1	0	2	0	0	3	5	16	1	2
St. Peter	4,302	4,176	5	1														
Sauk Centre	2,154	2,154	0															
Shakopee	2,046	2,302	1															
Sleepy Eye	2,046	2,247	4															
South St. Paul	2,322	4,510	5								1				1			
Staples	1,504	2,558	2															
Stillwater	12,318	10,198	11						1									
Thief River Falls	1,819	3,174	8	1														
Tower	1,111	1,111	1															
Tracy	1,911	1,826	1	1														
Two Harbors	3,278	4,990	4	1														
Virginia	2,962	10,473	13	1		1			1									
Wabasha	2,622	2,622	3	1											1			
Warren	1,276	1,613	2	1														
Waseca	3,103	3,054	2															
Waterville	1,260	1,273	0															
West St. Paul	1,830	2,660	1															
Willmar	3,409	4,135	9															
Winona	19,714	18,583	25	4	1										1	2		
Winthrop	813	1,043	1													1		
Worthington	2,386	2,385	2															



## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian .....	1,258	1,112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aitkin .....	1,719	1,633	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Akeley .....	1,184	1,221	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Appleton .....	1,121	1,204	3	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Belle Plaine .....		1,696	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biwabik .....		1,377	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bovey .....	721	1,058	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Browns Valley .....	1,040	1,227	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buffalo .....	1,175	1,372	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Caledonia .....	546	2,011	9	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Cass Lake .....		7,684	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chisholm .....		1,613	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coleraine .....	967	1,031	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delano .....	733	1,024	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Farmington .....	864	1,055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fosston .....	1,000	1,645	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Frazee .....	1,428	2,239	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Rapids .....	2,481	8,832	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hibbing .....	1,756	1,907	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackson .....	1,254	1,173	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Janesville .....	1,202	1,237	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kenyon .....	1,215	1,038	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lake Crystal .....	2,280	2,333	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Litchfield .....	1,385	1,250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long Prairie .....	1,272	1,273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Madelia .....	1,204	1,102	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Milaca .....	959	1,081	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mountain Lake .....		2,080	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nashauk .....	939	1,279	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Mankato .....	1,110	1,404	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North St. Paul .....	917	1,013	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Osakis .....	1,313	1,850	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Park Rapids .....	1,033	1,019	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pelican Rapids .....	1,182	1,376	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perham .....	993	1,258	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pine City .....	1,038	1,175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plainview .....	1,278	1,193	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preston .....	1,319	1,555	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Princeton .....	1,325	1,743	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Louis Park .....	1,189	1,818	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sandstone .....	1,391	1,745	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sauk Rapids .....	1,422	1,343	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Stillwater .....	1,511	1,482	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Springfield .....	1,770	1,817	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spring Valley .....	1,520	1,820	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wadena .....	2,017	1,755	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wells .....	2,250	3,022	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Minneapolis .....	1,132	1,300	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wheaton .....	1,288	1,505	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
White Bear Lake .....	1,944	1,749	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Windom .....	1,816	2,555	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Winnebago City .....	1,119	1,138	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zumbrota .....			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## STATE INSTITUTIONS

Anoka, Asylum .....	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Faribault, School for Blind .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Faribault, School for Deaf .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Faribault, School for Feeble Minded .....	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fergus Falls, Hospital for Insane .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hastings, Asylum .....	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Minneapolis, Soldiers' Home .....	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Owatonna, School for Dependents .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Red Wing, State Training School .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rochester, Hospital for Insane .....	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sauk Centre, Home School for Girls .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Peter's Hospital for Insane .....	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Cloud, State Reformatory .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stillwater, State Prison .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## OTHER PARTS OF STATE

	765	53	17	18	2	3	3	0	12	7	1	4	25	69	2	148
Total for state .....	1952	148	42	43	5	5	8	1	23	7	3	15	48	172	5	277

\*No report received. REGISTRAR not doing his duty.

124 stillbirths not included in above totals.

# Obstipation Following Operation

is *psychologically* depressing to the patient and causes him to "wonder if the operation was successful." Thus, dissatisfaction with the surgeon's result often arises both with the patient and with the family doctor. The patient becomes morbid, and even a hypochondriac, and "wonders if he will ever get well."

This is in addition to the *pathology* of the condition, namely, the autotoxemia arising from the obstipation, but **INTEROL**, as part of the post-operative treatment, coaxes the anesthetic-deranged peristalsis back to normal, at the same time softening, and then *lubricating* the feces around bends and angulations in the gut, making possible easy bowel movement, without straining at stool.

Some of our professional friends commence the **INTEROL** treatment one to three days following operation, and continue its use after the patient leaves the hospital.\* Eventually, it is diminished and finally discontinued,—**INTEROL**, in most cases, does not have to be taken forever.

**INTEROL** is more than "ordinary mineral oil": (1) it possesses *effective lubricating body* so that it clings to the fecal mass—**INTEROL** has efficient "spread and mix" properties\* (2) no "lighter" hydrocarbons to disturb the kidneys (3) no sulphur compounds to disturb digestion (4) no odor or flavor, so that the patient *can* take it and derive its benefit.

\***INTEROL** booklet on request. Pint bottles, druggists.

VAN HORN AND SAWTELL, 15 and 17 East 40th Street, New York City

## So many cases of **Pruritus, Chafings, and Irritations**

are relieved by applying

### **K-Y Lubricating Jelly**

that we feel we owe it to our patrons to direct their attention to the usefulness of this product as a local application, *as well as* for surgical lubrication.

No claim is made that K-Y Lubricating Jelly will act with equal efficiency in every case; but you will secure such excellent results in the majority of instances that we believe you will continue its use as a matter of course.

**NO GREASE TO SOIL THE CLOTHING!**

*Collapsible tubes, 25c. Samples on request.*

VAN HORN AND SAWTELL  
15-17 East 40th Street, New York City

## **"For this relief much thanks,"**

said Hamlet.

So also says the patient who has just used the

### **K-Y ANALGESIC**

you told him to get  
from his druggist

### **FOR THE LITTLE ACES OF EVERY-DAY LIFE,—**

little aches where a hypodermic would be too much, and where the pain is also too much for the patient. In such conditions,

### **K-Y ANALGESIC**

is an agreeably efficient middle course. No grease to soil the linen. Washes off in water.

*Collapsible tubes, 50c., druggists.  
Booklet and sample on request*

VAN HORN AND SAWTELL  
15-17 East 40th Street, New York City

# Hydroleine



Made from pure cod-liver oil emulsified after a scientific formula by approved processes.

The need of many children for cod-liver oil has been met with marked success by Hydroleine. They take it willingly; they—as well as adults—like its distinctive nutty flavor. Hydroleine is also exceptionally digestible. While its scope of usefulness is widened by its palatability and digestibility, it is always notably dependable.

Sold by druggists.  
THE CHARLES N. CRITTENTON CO.  
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Sample will be sent to physicians on request.

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APPLICATION OF  
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### \$5.00

The classical test is made. The various modifications will be made upon request, without additional charge.

Sterile container with needle and complete instructions sent upon request, without charge.

### Examination of Pathological

Tissue - - - - \$5.00

Slides of sections sent upon request.

### Autogenous Vaccines - \$5.00

Pyorrhea	Chronic Bronchitis
Asthma	Endocarditis
Sinus Infections	Otitis Media
Throat Infections	Skin Infections
Bladder and Urethral Infections	Hay Fever

The *exciting* organism is identified and isolated. Cultures are made both aerobically and anaerobically. The vaccine is furnished in a single half-ounce container or in ampules in graduated doses. Culture media, with sterile swab and directions for collection of specimens, sent upon request, without charge.

*Send for Fee List*

## National Pathological Laboratory

(INCORPORATED)

Chicago, Ill.  
5 S. Wabash Ave.

New York City  
18 E. 41st Street



## PUBLISHER'S DEPARTMENT

### MELLIN'S FOOD

Proportions of maltose and dextrins that are equally effective in both diarrhea and constipation and that are adapted to the needs of the sick infant, as well as the baby in health, are present in Mellin's Food.

### THE MILWAUKEE SANITARIUM

We have spoken not a few complimentary words of the work done by Dr. Richard Dewey, of the Milwaukee Sanitarium; but Dr. Dewey's reputation, based upon a long-continued success in his institutional treatment of mental and nervous patients, has rendered us quite safe from the dangers of fulsome laudation.

It is a real pleasure for us again to call the attention of our readers to such an institution as Dr. Dewey has long conducted at Wauwatosa, just outside of Milwaukee.

### A DIABETIC SANITARIUM

The diabetic, like the consumptive, needs, above all things, institutional treatment, which cannot be replaced in the slightest measure by any form of home treatment. Moreover, such treatment, under conditions at all favorable, generally means an improvement approaching a complete cure or, at least, restoration to fairly good health.

Dr. Robert C. Miller conducts a diabetic sanitarium at Freeport, Ill., and will be glad to give full information about his work to any physician.

### THE CHICAGO LABORATORY

It is not too much to say that the physician who does not either maintain a laboratory of his own or use the facilities of a public analytical and clinical laboratory, is not a modern practitioner and is not a safe man to whom to trust human life.

If a single one of our readers dissents from this statement, he needs education; and to this end we advise him to correspond with one of the directors, according to the line of work upon which he seeks information, of the Chicago Laboratory, 25 East Washington St., Chicago, and learn just what such a laboratory can do for him.

The laboratory is a life-saver in medicine.

### CANDY MEDICINE TIME—TABELLAE DULCES

The smile of the child at the taste of candy won't wear off; nor will the wry face ever be separated from the taste of bitter medicine. These facts are as universally known as is the existence of any trait in human nature. They produced the sugar-coated pill and the gelatine capsule; but, as the coating is thin and the capsule will stick in the throat and sometimes break, unpleasant tasting medicine will always repel many people.

It is the old story of the blunt screw and gimlet of yesterday. A man of some common sense made a gimlet-pointed screw; and the world still laughs at the stupidity which for centuries did not see the point.

And now the time has come for "candy medicine," and, acting upon the common-sense suggestion of Dr. Fantus, of the College of Medicine of the University of Illinois, a company in the Minnesota village of Hutchinson, famous in song, is making "tabellae dulces"—the

name tells the whole story. Their "sweet tablets" of all the unpleasant drugs are as "inoffensive" as a homeopathic pill of the 200X variety, and its sugar content is equally harmless.

These tablets are elegantly put up, and cannot fail to meet the highest commendation and large use from the medical profession.

The manufacturers, the Western Chemical Co., Inc., Hutchinson, Minn., will be glad to send free samples to all physicians.

### "THE SURGICAL EYE"

Of course "The Surgical Eye" is in the end of the surgeon's finger, and it often "sees" what the eye in the head cannot see even when looking right at the thing, and of course can never see when out of the range of vision.

The surgical eye works under the limitations set by modern aseptic surgery, and is partially blinded by rubber gloves not properly made; but the Lincoln Rubber Company, of Akron, Ohio, claim—and surgeons say it is true—that their "Knucklfit" gloves preserve the vision of the "finger eye," and eliminate all cramping of the fingers and hand, and permit free finger-action.

These gloves are sold by the Company's Northwestern Agents, Messrs. Noyes Bros. & Cutler, with their usual guarantee of "perfect satisfaction."

### THE CALUMET BAKING POWDER

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Some years ago the Calumet Baking Powder Co. determined to establish a standing for its product which no expert, state or national, could successfully assail. It presented its product to medical men, asking for the tests of the home and hospital kitchen and the chemical laboratory; and to these tests the Calumet powder has been subject for many years, and has been found "wanting" at no point. It is both healthful and economical, and no powder which is not deserves a place in the home or the hospital.

### THE POKEGAMA SANATORIUM

Lake Pokegama, in Pine County, is one of the most charming spots in Minnesota, and is only a short railway or motor ride from the Twin Cities. It is an ideal location for a sanatorium for the tuberculous; and its silent call for such an institution was heard some years ago, and it was answered by no novices, enthusiasts, or charlatans: it was answered by men who know both the dark and bright sides of this problem of life and death. Minnesota has now an institution on this beautiful lake that is a credit to its managers and to the medical profession of the Northwest. Its director, Dr. H. Longstreet Taylor, of St. Paul, long ago recognized the fact that almost the only hope of the tuberculous patient lies in institutional care, and not in medication. Dr. Taylor's public work in the warfare against the plague is well known, both within and without Minnesota. Dr. Taylor's associate, the resident superintendent, Dr. Robert Glenn Allison, was formerly engaged in this line of work with the Trudeau Sanatorium, the Sea View Hospital, of New York, and the Chicago Municipal Sanatorium.

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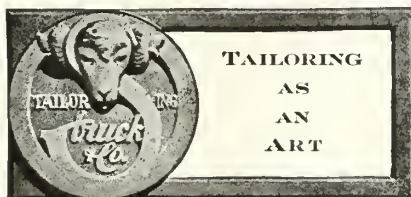
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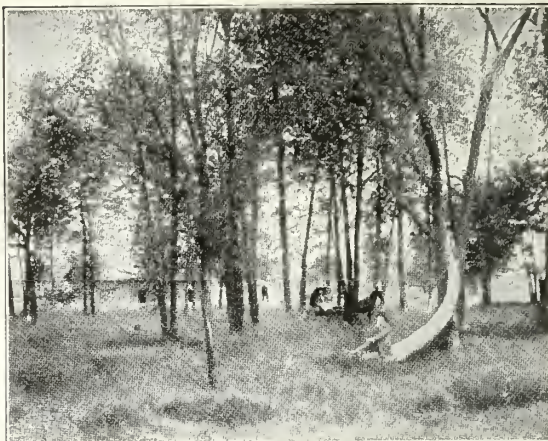
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# THE JOURNAL- LANCET

The Journal of the Minnesota State Medical Association  
and Official Organ of the  
North Dakota and South Dakota State Medical Associations

PUBLISHED TWICE A MONTH

VOL. XXXVI

MINNEAPOLIS, NOVEMBER 15, 1916

No. 22

## OFFICERS AND COMMITTEES OF THE MINNESOTA STATE MEDICAL ASSOCIATION 1916—1917

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C. L. SCOFIELD, M. D. .... Benson

The next meeting of the Association will be held in St. Paul on October 10, 11, and 12, 1917.



# MINNESOTA STATE MEDICAL ASSOCIATION

Minutes of the Forty-eighth Annual Meeting, held at Minneapolis, October 11, 12 and 13, 1916

## PROCEEDINGS OF THE HOUSE OF DELEGATES

FIRST SESSION—WEDNESDAY,  
OCTOBER 11, 1916

The House of Delegates met in the Empire room of Hotel Radisson, Minneapolis, and was called to order at 2:20 p. m. by the President, Dr. J. Warren Little, Minneapolis.

THE PRESIDENT: The first business to come before the House is the appointment of a Committee on Credentials. I will appoint Dr. R. J. Hill and Dr. Emil King.

Dr. Hill, Chairman of the Committee on Credentials, subsequently presented the following report:

### DELEGATES TO THE MINNESOTA STATE MEDICAL ASSOCIATION

Blue Earth County—Delegate: J. W. Andrews.

Brown-Redwood—Delegate: M. C. Piper.

Camp Release—Delegates: D. N. Jones and E. M. Clay.

Carlton—Delegate: James Fleming.

Central Minnesota—Alternate: H. C. Cooney.

Clay-Becker—Delegate: W. J. Awty.

Dodge—Alternate: F. D. Smith.

Freeborn—Delegate: W. L. Palmer.

Hennepin—Delegates: C. G. Weston, H. L. Staples, H. B. Sweetser, L. A. Nippert, J. W. Bell, J. C. Litzenberg, S. R. Maxeiner, R. E. Farr.

Kandiyohi-Swift—Delegate: C. L. Scofield.

Lyon-Lincoln—Delegate: A. D. Hoidale.

McLeod—Delegate: E. E. Barrett.

Mower—Delegate: D. E. McBroom.

Nicollet-LeSueur—Delegate: J. W. Daniels.

Olmsted—Delegate: M. S. Henderson.

Ramsey—Delegates: E. W. Buckley, J. T. Christison, Chas. D. Freeman, C. N. McCloud, H. P. Ritchie, F. J. Savage.

Red River Valley—Delegate: Theo. Bratrud (first day); Alternate: G. S. Wattam (last day).

Scott-Carver—Delegate: H. A. Schneider.

Southwestern—Delegate: Emil King.

Stearns-Benton—Delegate: J. H. Beaty.

Steele—Delegate: E. W. Senn.

St. Louis—Delegates: E. L. Tuohy and N. H. Gillespie.

Upper Mississippi—Delegate: P. E. Kenyon.

Wabasha—Delegate: D. S. Fleischhauer.

Watonwan—Delegate: W. H. Rowe.

West Central—Delegate: Amos Leuty.

Winona—Delegate: J. L. Lynch.

Wright—Delegate: L. Harriman.

THE PRESIDENT: The next order of business is the reading of the Minutes of the House of

Delegates of the last annual meeting. These Minutes have been published in THE JOURNAL-LANCET. What is your desire? Would you like to have them read, or are you satisfied with the publication of them?

It was moved that the reading of the minutes be dispensed with.—Seconded and carried.

THE PRESIDENT: The next order of business is the report of the Secretary.

The Secretary presented his report, as follows:

### REPORT OF THE SECRETARY

The Secretary has to report a membership to this date of 1,580. No new county societies have been formed, nor have any been discontinued. Nothing of more than ordinary interest has occurred during the year. Our defense feature has worked satisfactorily. The cost has been increased, but there has been much litigation. We are having the same experience all defense associations have had, and an increase of cases each year, and necessarily the cost has increased correspondingly. In two cases a judgment has been found against us, but in each case a new trial has been asked for. The expense has been about \$2.00 per member. Other states are paying much more. California paid about \$5.00 per member. For proper defense amendments will be offered which experience has demonstrated necessary. These will be offered at the proper time for your consideration.

THOS. MCDAVITT, Secretary.

THE PRESIDENT: The next report will be that of the Treasurer.

Dr. Earle R. Hare submitted the following report as Treasurer:

### FINANCIAL STATEMENT

Sept. 1, 1915, to Sept. 1, 1916

#### RECEIPTS

On hand Sept. 1, 1915, in bank	....\$4,360.37
On hand Sept. 1, 1915, in bonds	.... 4,000.00
Thos. McDavitt, Secretary—Dues	.... 4,731.00
Interest—Bonds—Daily Balance	.... 304.92
Unpaid Voucher No. 212	..... 5.50
	————— \$13,401.79

#### DISBURSEMENTS

JOURNAL-LANCET	.....\$1,522.67
Thos. McDavitt—Expense of office	.. 291.03
Salaries	..... 400.00
State meeting	..... 276.77
Legal fees	..... 3,361.64
Printing and stationery	..... 121.50
Legislative committee	..... 7.50
Secretary and Treasurer bonds	..... 32.50
Safety deposit box	..... 5.00
Councilors' expenses	..... 44.57
Delegates' expenses	..... 40.35
Cash in bank Oct. 1, 1916	..... 3,298.26
Bonds	..... 4,000.00
	————— \$13,401.79

EARLE R. HARE, Treasurer.

THE PRESIDENT: The report of the Treasurer has been audited, so that we know it is correct.

Dr. R. J. Hill: I move that the Treasurer's report be accepted.—Seconded and carried.

THE PRESIDENT: We will now hear a report from the Committee on Necrology.

Dr. Fred P. Strathern, St. Peter, Chairman, presented the following report:

#### REPORT OF THE COMMITTEE ON NECROLOGY

DR. CHARLES A. WHEATON

For thirty years Dr. Charles A. Wheaton stood head and shoulders higher than any medical man in the Northwest, and it has fallen to the lot of few men to be loved and honored by his friends and by his patients as was he. Coming into practice just at the beginning of the new era of surgery, when Lister's methods of antiseptics were beginning to be adopted, Dr. Wheaton, who was fresh from the Massachusetts General and the City Hospitals in Boston, gave the new methods a thorough trial; and, while he appreciated fully the principles laid down by Lister, he was not very enthusiastic about the details as then practiced, and he quickly abandoned the carbolic spray. He was one of the first to appreciate the vast difference between antiseptics and asepsis, and the latter method was urged and practiced by him some time before it became general. He was a profound student of gross anatomy, and as a rapid, clean, and sure operator he had few equals in this or any other part of the world. A thorough mastery of the principles of surgery, a deep insight into the art of surgical diagnosis, and an unmistakable honesty, and earnestness in expressing his opinion, combined to earn for him a position as a surgical consultant which no other man has ever approached in this part of the country. It is a significant fact that a great majority of the leaders in surgery in Minnesota today, have been at one time or another either students or associates of Dr. Wheaton, and owe not a little of their success to his teachings and to his example.

Dr. Wheaton's contributions to medical literature were not numerous, but whatever he wrote was original and based upon his own personal experience; consequently the papers which he did publish had a very real value. In debate he was always ready and he was always listened to with great respect. His quick wit and his unusual fund of anecdotes to illustrate the point he wished to make, made his remarks at medical meetings particularly charming.

He was a deep student of surgical literature and especially of the writings of the old surgical masters, and had accumulated a very valuable library, particularly rich in the works of the older teachers of anatomy and surgery. He presented this library, some time before his death, to the University of Minnesota, where he had for so many years taught surgery.

Accomplished as he was in every department of surgery and surgical technic, it would be difficult to point out just where Dr. Wheaton chiefly excelled in his operative work. It is certain that his work on the bladder and the prostate was far and away the best which has ever been done by any surgeon in this part of the country, and he was a pioneer in gall-bladder surgery. In bone-surgery, too, he was bold and radical, as well as conservative, and hundreds of his patients owe it to his wisdom and skill that they now have sound

and useful limbs. In his personal relations with his patients, his cheerful optimism and his sweet and sympathetic nature made him loved and trusted both as a friend and a physician. He had a rare personality, which but very few possess.

The medical profession of Minnesota had bestowed upon Dr. Wheaton every honor within its possession; and at one time or another he held the highest office in every professional society in the state of which he was a member. He was in no sense a politician and never sought or bargained for an office. Had he chosen to do so he could easily have been president of the American Medical Association, but the game of medical politics was one which he would not stoop to play.

In his private life and among those few who had the privilege of his intimate friendship, Dr. Wheaton's rare and sweet personal qualities endeared him to his friends and bound him closely to them by ties which only death could sever and the memories of which can never be forgotten. While his professional work was the chief joy of his life, few men loved nature and the call of the wild more than he did, and nothing in life appealed to him so much, when he could get away from his work, as a hunting or fishing trip; and a more ideal companion for such a trip could hardly be imagined. For many years he had spent his summers at his beautiful country place on the Brule River, and the delight which it gave him to spend the long summer days in his canoe with his Indian guide, his pipe, and his rod, will never be forgotten by those who were privileged to enjoy those days with him and to share the generous hospitality which he so loved to extend to his friends. For the last few years of his life, failing health had compelled him to retire from practice; and, as his winters were for the most part spent away from St. Paul and his summers on the Brule, his friends saw but little of him, while to the rest of the world he was but a sweet memory.

However positive or however skeptical we may be concerning a life after death, each one of us, probably, has some definite conception of what he would like such a life to be. Those who knew "Charlie" Wheaton will be certain that if there are any happy hunting grounds beyond the grave reserved for the chosen few, where they may dwell forever happy, surrounded by forests, lakes, and streams, the choicest spot amongst them has been set aside for him.

Dr. Charles A. Wheaton, of St. Paul, died in April at the age of 63. Dr. Wheaton was born in Syracuse, N. Y., and after graduating at Harvard, came to St. Paul in 1879, and was soon recognized as the foremost surgeon in the Northwest.

DR. HERBERT L. HULBURD

By a Friend

On the 13th day of May there passed away at his home in Morris one of the best known physicians of western Minnesota, Dr. Herbert L. Hulburd. For thirty-eight years Dr. Hulburd had been a practitioner of that city, and he belonged to that rapidly thinning class of the older doctors who cannot by age be kept back from the front of scientific work.

A native of New York State, he graduated from Long Island College Hospital in 1875, and practiced in Pres-

cott, Wisconsin, two years before coming to his permanent location.

Ethical almost to a fault, Dr. Hulburd was never known to do an unkind act or shirk a duty, and many are the friends and colleagues who poignantly feel his passing away.

#### DR. ARTHUR W. DUNNING

Dr. Arthur W. Dunning died suddenly on December 21 at his home in St. Paul.

Dr. Dunning was born in Fond du Lac, Wisconsin, February 12, 1860, the son of Orson P. Dunning and Dalmatia Sturtevant. He obtained his medical education at the College of Physicians and Surgeons (University of Illinois), where he graduated in 1885. He practiced for a few years at Rosendale, Wis., and located in St. Paul in 1888. He had taken postgraduate work at Johns Hopkins Hospital in 1900 and at Harvard in 1902. About 1908 he limited his work to nervous and mental diseases, and was very well known throughout the Northwest in this branch of medicine. Among professional society connections he was a Fellow of the American Medical Association and a member of the Minnesota State Medical Association. He had just been elected President of the Minnesota Academy of Medicine after having served that body as Secretary for many years, and as Vice-President last year. A large part of the success and popularity of that organization was due to his untiring efforts. He was also a member of the Minnesota Neurological Society. For twenty-seven years he had been a member of the Ramsey County Medical Society, and had been at times its Treasurer, Secretary, Vice-President, and, in 1905, was its President.

The doctor had many hospital connections. He enjoyed staff positions in Neurology and Psychiatry at the St. Paul City and County Hospital, St. Luke's Hospital, and the St. Paul Free Dispensary. He was a member of the faculty of the University of Minnesota for many years before the recent reorganization, and was known to his students as a thorough and interesting clinician.

In 1891 he was married to Miss Emma Francis Holman, who died in 1910. Two grown daughters survive him. With his wife the doctor was interested in charitable organizations, and their instrumentality was largely responsible for the erection of the building for the Woman's Christian Home. As a director of this organization he served for many years. In civic work his interest was centered in the play-ground movements, and for twelve years he was a member of the Playground Committee of this city. He was Secretary of the Board of Managers of St. Paul Deaconess' Home at the time of his death, and this organization owed much of its growth to the efforts of the doctor and his wife. He also held the office of Director of the Young Men's Christian Association when his demise occurred. He was Trustee of the First Methodist Church for many years, and was still in office at the time of his death. He lived quietly, and spent most of his summer months at his country home at Bald Eagle Lake.

Suddenly cut down in the height of his active special work, he leaves a host of friends and patients who will mourn his death.

#### DR. CHARLES T. GRIVELLY

Dr. Charles T. Grivelly, of Young America, Minnesota, died at his home on the 14th day of June, from heart disease. He was 43 years of age. He was a Fellow of the American Medical Association, also a member of our State Medical Association, and was licensed in 1896 after graduating from the State University.

Dr. Charles T. Grivelly was born in Basel, Switzerland, on July 20, 1872. When a young man he came to this country with his father, and took up the study of medicine, both here and in Europe. After a few years of practice under Dr. Schwyzer, of St. Paul, he came to Waconia, and later to Young America, where he continued his practice until his demise. A wife and four children survive him.

#### DR. CHARLES H. JOHNSON

Dr. Charles H. Johnson, of Austin, Minnesota, died at the Great Northern Hospital in Chicago on July 27, 1916, of heat prostration. He was 57 years of age at the time of his death.

Dr. Johnson was a graduate of the Medical Department of the McGill University of Montreal.

#### DR. WM. B. MURPHY

Dr. Wm. B. Murphy was born in Chicago in 1871. He was educated in the public schools of Chicago. His parents died when he was nine years of age. He went to Stoughton, Wis., after finishing school, where he engaged in the grocery business for a few years. Then he came to Minneapolis, and entered Hamline University Medical School, from which he was graduated in 1897. He then entered St. Joseph's Hospital as interne for one year. He was on the Minneapolis City Hospital Staff until 1905, and was Deputy Coroner for two terms. Death was due to lobar pneumonia.

#### DR. CHARLES WILLIAMS

Dr. Chas. Williams was born April 10, 1863, at Ridgway, Wisconsin. He was educated in the schools of Dodgeville and Spring Green, Wis., and graduated from the N. W. Medical School in 1891. He was a member of Stewart Memorial Presbyterian Church, of the Ark Lodge of Masons, and the Minneapolis Mounted Commandry and the Athletic Club. He practiced here twenty-five years.

#### DR. FRANKLIN J. CRESSEY

Dr. Franklin J. Cressey, of Granite Falls, died at St. Luke's Hospital in St. Paul, on June 26th. At the time of his death he was 67 years of age. He was born in 1849. He had been in poor health for a year or more before he died. He was licensed to practice in Minnesota in 1883. He graduated from the Medical Department of the University of Iowa in 1877.

#### DR. JAMES IRVING TIBBETTS

Dr. James Irving Tibbetts, of Wayzata, was born August 3, 1848, on the Island of Madeira. His father was born in Edinburgh, and was a graduate of Edinburgh University Medical College. Dr. Tibbetts came to America in 1854 and lived at Covington, Ky. He was a druggist in Indianapolis from 1865 to 1880. He



graduated from the Central College of Medicine and Surgery of Indianapolis in 1883, and came to Wayzata the same year. He was an Episcopalian. He was Mayor of Wayzata several years, and influential in obtaining a new High School and Public Library. Dr. Tibbetts suffered from chronic nephritis and dilatation of the heart, which finally caused his death. Surviving him are Mrs. Tibbetts, a son, and a daughter.

#### DR. ALANSON G. ALDRICH

Dr. Alanson G. Aldrich was born at Adams, Mass., and was about sixty years old. He was a grandson of David Aldrich, a famous Quaker preacher. He was graduated from the College of Physicians and Surgeons, Baltimore, in 1879, and after practicing his profession in Massachusetts for three years he went to Anoka, Minnesota, in 1882. Dr. Aldrich was a 32d degree Mason and a Shriner, and a prominent Democrat.

#### DR. HANS GRIVELLY

Dr. Hans Grivelly, of Hohenwald, Tenn., but formerly of Norwood, Minnesota, died very suddenly at his home on March 28, 1916. He was graduated from the University of Iowa Medical Department in 1887, and was licensed in Minnesota in 1912.

#### DR. E. M. LUNDHOLM

Dr. E. M. Lundholm, one of the leading surgeons of St. Paul, died on August 6 after an operation for gastric carcinoma. Dr. Lundholm was born in Venjan DeLarne, Sweden, June 20, 1858, and completed his collegiate education at Falun in 1881. In the same year he commenced his medical studies at the University of Upsala. Under the Swedish law, the medical student was obliged to pursue a course at either the University of Upsala or of Lund, attend the Medical Institute at Stockholm, and take about two years of clinical work at one of the university hospitals at Upsala or Lund, and at the hospitals in Stockholm. In accord with these provisions, Dr. Lundholm completed his professional studies at Upsala University in 1886, spent the years from 1886 to 1890 in his medical studies and clinical work at Stockholm, and in the latter year passed his final examinations at the Carolinian Medical Institute. In 1890 he also obtained his license to practice in Sweden. For three summers during his studies he served as assistant physician at the Springs of Satra, Vestmanland, and in Djursatra, Verstergotland.

In 1888, however, Dr. Lundholm having already visited the United States, and passed his examination in St. Paul before the Minnesota State Medical Board, returned a few months later to complete his studies in Sweden. Since 1891 he has practiced in St. Paul, having been officially connected with the Bethesda Hospital and one of the university hospitals at Upsala or Lund, and connections were with the Svenska Lakare Salskopet of Sweden, the American Medical Association, the Minnesota State Medical Association, the Ramsey County Medical Society, and the Minnesota Academy of Medicine.

In 1890 he married Miss Anna Olson, of Gestrikland, Sweden, who, with his two sons and two daughters, survives him.

Dr. Lundholm was a bold and original surgeon and

had made several important contributions to medical literature. He will be greatly missed by his many friends and patients.

#### DR. A. M. BRUNELLE

Dr. A. M. Brunelle was born December 5, 1856, at St. Eustache, P. Q., Canada, and removed to Minneapolis shortly afterwards.

He attended St. Hyacinth College, in the Province of Quebec, Canada, for eight years, graduating from there in 1876.

In 1883 he took his medical degree at the University of Minnesota.

He was married to Miss Elizabeth Robin of Montreal, Canada, in 1889.

He had resided in Cloquet for twenty-nine years previous to his sudden death from heart failure on November 25, 1915.

He is survived by his wife and three children, Henry D., Philippine Islands; A. Maurice, of Minneapolis, and Lucille C., of Cloquet.

#### DR. W. G. BREDE

Dr. W. G. Brede of 2549 Filmore, Minneapolis, died suddenly on September 5, 1916, from septic pneumonia following a cellulitis on the back of the neck. He was 40 years of age at the time of his death. He was born in 1876.

Dr. Brede was a graduate of the University of Minnesota, in 1906. He was formerly a Fellow of the American Medical Association, and member of the Minnesota State Medical Association.

#### DR. CARL V. COLE

Dr. Carl V. Cole was born in Herman, N. Y., December 15, 1877, and would therefore have been 39 years of age next December. He came to Minnesota with his parents when a mere boy and received a common education. He took a medical course at the University of Minnesota and graduated with honors in 1905, and came to Lake City where he located at once in his chosen profession and where he has since resided. He enlisted in the ranks and served during the Spanish-American War in 1897, and after his location in Lake City was a member of the Hospital Corps in the Third Regiment, M. N. G., and had the title of First Lieutenant. He resigned and was honorably discharged from the service several months ago, business practice here making it impossible for him to continue in the position.

In July, 1909, Dr. Cole was united in marriage with Miss Anna Seeley of this city, and she with two little girls, Elizabeth, aged 6, and Catherine, aged 3, are left to mourn the loss of a dear and loving husband and father. The aged mother, Mrs. Coleman of Glenwood, Minn., several brothers and other relatives also survive.

F. P. STRATHERN, M. D.,

Chairman Committee on Necrology.

THE PRESIDENT: You have heard the report of Dr. Strathern. It is well, in our busy lives, to pause and consider the ones we loved so dearly who have passed away during the year; and as this is by far the best report on necrology I have

heard at any time, I should be pleased to consider a motion thanking the doctor for his care in preparing it.

A rising vote of thanks was extended to Dr. Strathern for his report.

THE SECRETARY: I will read the following communication from the Secretary of the Minnesota State Pharmaceutical Association:

### MINNESOTA PHARMACEUTICAL ASSOCIATION

*To the Secretary of the Minnesota State Medical Association:*

Enclosed please find credentials for delegates from the Minnesota State Pharmaceutical Association, who have been appointed to attend the coming convention of the State Medical Association.

The Minnesota State Pharmaceutical Association has been more active during the past year than ever before in its history. A number of the activities of our members, I believe, merit the hearty approval of the physicians of the state. You may be interested to know that our Association is canvassing a referendum vote on the matter of requiring a college education of all who may, in the future, desire to become pharmacists. At the present writing, approximately one thousand votes have been received, eighty per cent of which favor such proposed legislation.

I enclose a copy of the ballot which has been used in connection with this referendum.

Physicians, I believe, are almost unanimously in accord with measures of the kind herein indicated. It would therefore be entirely proper for the physicians to give their approval, at your coming convention, of the prerequisite legislation, as proposed by the pharmacists of the state.

Furthermore, our Association proposes to give active support to legislation which will restrict the indiscriminate sale of drugs and medicines throughout the state by peddlers. Inasmuch as the medical act of the state is no doubt violated by such vendors every day by indiscriminate treatment of the diseases met in their travels, our efforts in this direction should also meet with the approval of physicians.

Expressing the hope that the Minnesota State Pharmaceutical Association may co-operate with the State Medical Association along the lines which are for our mutual benefit, I am,

Very truly yours,

E. L. NEWCOMB, Secretary.

This is to certify that the following named members of the Minnesota State Pharmaceutical Association have been duly appointed as delegates to represent the aforesaid organization at the 1916 convention of the Minnesota State Medical Association:

F. A. U. Smith, Chairman, St. Paul.

W. A. Frost, St. Paul.

J. A. Harrah, Minneapolis.

A copy of these credentials has been forwarded to each of the delegates.

THE SECRETARY: I move that the committee bearing these credentials be granted the privi-

leges of the floor of the House of Delegates.—Seconded and carried.

THE SECRETARY: A vote should be passed commending the high stand that the Minnesota State Pharmaceutical Association takes in regard to higher education for pharmacists.

Dr. H. M. Workman: I make that as a motion.—Seconded and carried.

THE SECRETARY: I move that these gentlemen be requested to make themselves known to the President of the Association, so that they can present their credentials.—Seconded and carried.

THE SECRETARY: I have the following report to make from our attorney regarding medical defense:

### ATTORNEY'S REPORT

Dr. Thomas McDavitt, October 3, 1916.

Secretary, Minnesota State Medical Association,  
Lowry Building, St. Paul, Minn.

Dear Sir: We submit herewith a detailed statement of work done for the Minnesota State Medical Association since my last report:

#### *Hilda J. Hiles vs. Dr. Norman Dreisbach*

In this action plaintiff's attorney served an amended complaint. About one year has elapsed since the new complaint was served but no notice of trial has been served. It is altogether probable that the case will never be brought to trial.

#### *Emma Haslach vs. Dr. J. J. Platt*

Since our last report this case was dismissed for want of prosecution. It is quite certain that a new action will not be instituted.

#### *Herman A. Muggenberg vs. Dr. L. D. Peck*

This case was tried at Hastings, Dakota County, last December, resulting in a directed verdict for the defendant. Subsequently the defendant moved for a new trial which was denied. Judgment has since been entered in favor of the doctor which finally terminates the case.

#### *Jaue Lund vs. Dr. J. Harland Stuart*

This action is on the calendar of the Hennepin County District Court and was reached for trial at the last term. The plaintiff was prepared to go to trial at that time, but the defendant applied to the Court for a continuance because of the absence of witness, which motion was granted. The case has not been called for trial since and I am not fully advised at this time whether it will be tried.

#### *Andrew D. Sohlberg vs. Dr. Chas. Swenson*

This case was tried last October at Cambridge in Isanti County. The jury returned a verdict for the defendant. Later a judgment was entered in favor of the doctor which finally terminates the case.

#### *Frank Borzych vs. Dr. Lloyd Herbert Arts*

This is an action brought in Jackson County. The case is at issue and will probably be tried in November. Results will be reported in due time.

*Wm. H. Peterson vs. Dr. B. J. Branton*

This is an action brought at Willmar, Kandiyohi County. It has been noticed for trial and it is expected that a trial will actually be had during the week beginning October 2nd.

*Martin Jacobson vs. Dr. J. W. Meighen*

This case was commenced in the District Court at Moorhead, Clay County, and was tried last May. The jury after being out twelve hours returned a ten to two verdict in favor of the plaintiff for \$1,000. Motion was subsequently made in behalf of the defendant for a new trial, which was argued to the Court at Moorhead in August. This action is still pending on this motion and awaiting a decision on the question of granting defendant a new trial. We have reasonable grounds to hope that the motion will be successful. In that event, the case would stand for a trial at the December term of Court at Moorhead.

*Walsh vs. Burns and Burns*

This is an action for alleged wrongful operation—plaintiff complaining that she went to the hospital to be operated on for pus under the lung and her appendix was removed instead thereof. Case tried before Judge Flaherty and jury at Ortonville, Minnesota. Verdict rendered for plaintiff \$1,000. Motion for new trial made and granted. Case is to be tried in the course of a week or two.

*Baxter vs. Lufkin*

This was a claim for damages arising out of an alleged x-ray burn. The matter was dropped without suit.

*Mueller vs. Browning*

Action against Dr. Browning of Caledonia, Minnesota, for alleged negligence in setting fractured limb. At the close of the testimony a verdict was directed for the defendant.

*Olson vs. Reynolds*

Action against Dr. Reynolds of Minneapolis, for alleged wrongful removal of an eye. The case was dismissed.

*Christianson vs. Hegge*

Action against Drs. Hegge & Hegge of Austin, Minnesota, for leaving a part of a needle in the plaintiff during an abdominal operation. Case is for trial this fall.

*Sims vs. Manson*

Action against Dr. Manson, of Worthington, Minnesota, for alleged negligence in failing to properly set both of plaintiff's arms. Owing to this alleged negligence plaintiff claimed he had to have two autografts and a Lane's plate inserted in his arm. Case tried in the Federal Court in Mankato, Minn., before Judge Morris and jury. Verdict in favor of defendant.

*Bartholomew vs. Hagen & Bessessen*

Action against Doctors Hagen & Bessessen, of Minneapolis, for alleged negligence in performing an operation on the neck of the femur. Negligence claim was in putting head of femur in place and leaving sponges in the wound. At close of plaintiff's testimony the case was dismissed.

*Dunn vs. Carter*

This was an action commenced by Dr. Dunn at St. Cloud to recover for services. A counterclaim was interposed, claiming damages for malpractice, in setting defendant's limb. The counterclaim was dismissed and judgment rendered for the plaintiff, for the amount of his services.

*Loeveness vs. Bohland*

Action against Dr. Bohland of St. Paul for alleged malpractice in failing to properly treat broken arm. Answer has been interposed and case is to be tried some time this fall.

*Risteau vs. Fifield*

Action against Dr. Fifield of Minneapolis to recover for alleged negligence in treating case of infantile paralysis. At the close of plaintiff's testimony the case was dismissed.

*McChesney vs. Manson*

Action against Dr. Manson, of Worthington, Minn. In this case Dr. Manson simply assisted another doctor who has insurance. We understand the insurance company is defending both doctors.

*Howley vs. Baker*

Action brought against Dr. Ernest L. Baker of Minneapolis, for alleged neglect in failing to properly treat a dislocated hip. Case is set for trial in Hennepin County, for October 20, 1916.

*Jelle vs. Adkins*

Action against Dr. C. M. Adkins of Grygla, Minnesota, for alleged negligence in failing to properly diagnose plaintiff's illness as pneumonia and operating for pus. The case came on for trial on June 1, 1916. A jury was called and plaintiff asked for a continuance. This was opposed and the court rules that the case must proceed to trial—thereupon plaintiff exercised his right to dismiss the case. Nothing further has been heard from the matter and it is regarded as dead.

Yours very truly,

DURMENT, MOORE, OPPENHEIMER & HAUPT.

By W. H. Oppenheimer.

THE PRESIDENT: No action need be taken in this matter. It is for your information.

DR. WORKMAN: In this connection, I would like to offer the following amendment which is recommended for adoption by the Council:

AMENDMENT TO CHAPTER XI OF THE BY-LAWS OF THE  
STATE MEDICAL ASSOCIATION

Article I. Section 4. The following to be added: If the case is one involving an injury to a bone or joint, an x-ray plate must be made at the time of treatment and kept for evidence. If this is not done, the Association may decline the defense.

The Association will decline to defend an action where the claim malpractice is entered, as a defense to a suit for a bill, unless the attempt to collect the bill by suit is made within one year after the services were rendered.



THE SECRETARY: I have received the following communication from the Secretary of the American Medical Association, which I desire to present to the House of Delegates for its consideration:

October 3, 1916.

Dr. Thomas McDavitt, Sec'y  
Minnesota State Medical Association,  
St. Paul, Minn.

My dear Dr. McDavitt:

You will recall that the House of Delegates at the Detroit meeting requested the several State Associations to appoint committees on social insurance to co-operate with the committee considering the subject acting under the Council on Health and Public Instruction of the American Medical Association. The functions of the Committee with which the state committees are asked to co-operate are defined on page 67 of the Proceedings of the House of Delegates for the Detroit meeting sent to you some time ago.

In order that we may know to whom communications regarding social insurance of interest to the State Association should be addressed, will you kindly advise us who constitutes the Committee on Social Insurance of the Minnesota State Medical Association? Or, if no special committee has been appointed, to what standing committee of your Association communications on this subject should be sent, advising us of the personnel of the committee and indicating the chairman.

Thanking you for your co-operation in this matter, I am,

Very truly yours,  
ALEX. R. CRAIG, Secretary.

THE SECRETARY: I move that the President be authorized to appoint a special committee on social insurance of three to whom all questions of this kind may be addressed.—Seconded and carried.

THE PRESIDENT: I will appoint this committee a little later.

DR. J. W. ANDREWS: I would like to know what social insurance is, and what is the purpose of the committee? I wish the Secretary might explain.

THE SECRETARY: I know nothing further than the reference I have given you. It is a committee appointed by the American Medical Association, as it states here, to take all these matters into consideration, and I would like very much to have a committee appointed to find out what it is.

#### THE PUBLICATION OF DR. TOMLINSON'S PAPERS

The Secretary read the following letter from Dr. H. D. Valin relative to the publication of the collected papers of the late Dr. Harry A. Tomlinson:

Dear Doctor:

A movement for the publication of the collected papers of the late Dr. H. A. Tomlinson was started by the Nicollet-LeSueur County Medical Society a year

ago, and a committee on publication was appointed. The Blue Earth County Medical Society, at their last meeting, endorsed the movement, and elected Dr. J. J. James a member of the committee on publication. We would like the State Medical Association to take the matter up, pass a resolution, and appoint a member to be a member of the publication committee.

A delegate from the Nicollet-LeSueur County Society has this matter in hand, and I hope you will let him have the floor at the proper time.

The movement seems quite popular, and will be brought before the Southern Minnesota Medical Society in Mankato in December. Dr. Ella B. Everitt of Philadelphia, is charged to bring it to the attention of the Alumni of the Medical Department of the University of Pennsylvania. All that is needed is two hundred subscribers.

Very respectfully yours,  
H. D. VALIN, M. D.

THE SECRETARY: I move that the delegate from the Nicollet-Le Sueur County Medical Society be given the privileges of the floor to tell us what he knows about this.—Seconded and carried.

DR. STRATHERN was called for, but was not present.

THE PRESIDENT: I take it that this does not cover anything more than an indorsement of the scheme, and carries no obligation.

THE SECRETARY: They simply want a delegate from this Association to assist in the arrangement of the publication of these papers if they desire to have them published. It carries no expense with it, and only some work for the delegate.

DR. EMIL KING: I move that this house appoint such a delegate. I was fortunate enough to be acquainted with Dr. Tomlinson a good many years, and I am sure, in the southwestern part of the state, there are many of us who would be pleased to get all of the papers that the doctor prepared and read during his professional career. I know I would myself, and therefore I move that such a delegate be appointed.—Seconded and carried.

THE PRESIDENT: Whom would you select as a delegate?

THE SECRETARY: I move that we wait until the last day of the meeting, and in the meantime take the matter under consideration.—Seconded and carried.

DR. EMIL KING: In order to expedite the business of the House of Delegates, I think it would be wise to make a motion at this time that discussions be limited to five minutes in the further transaction of such business as may come before us.—Seconded and carried.

The President reported for the Committee of

Arrangements that most of what is going to be done was given on the program. A luncheon would be served tomorrow noon in the Roof Garden of the Radisson Hotel, free to all members.

THE PRESIDENT: If there is no new business to come before the House at this time, a motion to adjourn will be in order.

DR. J. W. ANDREWS: It seems to me that it is a little unfortunate that we cannot proceed with the business this afternoon. The scientific sections of our Association are not in session, and we are here for the purpose of attending to and transacting the business of the House of Delegates, and it would be desirable, I think, if the business could go on and be disposed of as much as possible.

#### MEDICAL DEFENSE

The following informal discussion took place with reference to damage suits and medical defense:

DR. L. A. NIPPERT: I would like to know how long it is going to be before this Association will be swamped if we have to pay out as much for defending damage suits as we did last year?

THE PRESIDENT: I am your mouthpiece. I do not know how long the Association can keep up that pace if it has to pay out \$3,500 for damage suits in a year and collect only \$1,500. With \$4,000 in bonds we can run along as we are doing until we can no longer pay such amounts for defense, and then increase the dues to \$5, as the California Association has done for its insurance feature. Even if we have to pay \$5, it is cheap insurance.

THE SECRETARY: Our defense has been in operation now since April 1, 1910. The first year it cost us about \$700, and the second year it cost between \$800 and \$900. It has increased right along until this year the cost has been pretty nearly \$3,500. From the number of cases we have had, we have had to submit to a great deal of litigation.

The history of all of these defense measures is, that they increase right along from the time they have been organized. Every year they increase in number and increase in extent. The Iowa Association has been in operation a little longer than ours. They have had an unusual amount of litigation, so much so that the Association has been almost swamped with the number and costliness of the suits that have been brought. In talking to a member of their committee some time ago and seeing the enormous number of their suits, I expressed the opinion that there was something the matter with either the medical profession in Iowa or with the legal profession, or both, considering the fact that so much litigation could take place in one state. The cost down there has been such that they have some measures under consideration, and I believe in operation at the present time. I do not know what they did in reference to it.

The California State Association has been particu-

larly unfortunate in the number of its suits. On the other hand, they have been particularly fortunate in the manner and method by which they have fought them. They have had a large treasury; they have fought these suits very differently from any other state I know of. In other words, they have no by-law covering the matter at all; the matter is left in the hands of the Council, and all litigation depends upon the Council entirely. The consequence is, that the fight has been a one-man fight all the way through, although the Council has worked beautifully together. There have been one or two men who have run the litigation, and it was not very often that they get hurt; but it is a costly proposition. California has a measure under advisement at the present time, and their secretary and one or two other men who are prominent in such work assured me that the matter is going through successfully, namely, to charge a certain amount to get a fund even to pay all judgments. In coming down to close figuring, speaking to the secretary about it some time ago, they would be hardly able to pay many of the judgments.

That is not our plan. Our defense has been very successful. As you have noticed from the report of numerous cases we have had, there have been only two in which the defendants have had judgment entered against them.

It is up to the House of Delegates as to just what shall be done with this defense feature. If you want it continued, well and good. Personally, I do not doubt but what we have sufficient funds on hand to meet the expense. We are starting out now, as I explained to the Council this morning, with an open fund in the treasury of approximately \$3,300. All we get is from our dues; our dues this year have amounted to three times \$1,580, the number of members we have. We have to run from now until the first of the year before our new dues will begin to come in, namely, between January 1 and February 1. The treasurer expects to take in upwards of \$4,000 to start with, the balance of it coming in dribblets along during the year. One thousand dollars should pay all the expenses to January 1 including the expense of this annual meeting.

Now, it is a matter of great importance I think to a great many in this state whether we continue the defense or whether we drop it. I feel that it has been a feature to draw members into the Association. We never have had as many members as we have had this year; and that, together with the state journal, has meant the life of our Association.

A good many men are opposed to this defense measure, but I think, for the good of the profession of the state and for the good of the members outside of the large cities, that we want to be very careful what we do in this defense because it is very popular with the doctors throughout the state, and it is comparatively little cost. May be you gentlemen may think it might be best to increase the dues.

We must finish up these cases. If we should drop the defense feature, we would have to finish up the litigation we are engaged in at present. It is a question of what is the best thing for the Association and what is best for the finances.

DR. J. W. ANDREWS: I am one of those who are opposed to the defense feature for the following reasons: First, it simply proposes to defend a physician who has a suit brought against him. If the verdict is



against him, he has the verdict to pay. There is an increasing number of malpractice suits. This Association has not had a different experience from the indemnity association in general. These suits are on the increase, and, I think, the liability laws have had perhaps something to do with them, and that shyster lawyers have had a good deal to do with it. However that may be, malpractice suits are on the increase. In Blue Earth County and that vicinity we have had more suits in the last two years than in the twenty-eight years before, and they are on the increase there and here. A physician does not feel protected if he is only insured the expense of his suit, and a large majority of physicians in my part of the state have other insurance, and do not depend upon the defense feature of this Association, and do not use it. One does not feel safe without other insurance. One of our physicians had a verdict against him of \$2,000. He was in another insurance association, and consequently his verdict was paid; but there would have been a verdict of \$2,000 for him to pay if he had depended upon the defense of this Association. So there is one serious objection to it.

Another serious objection to it with the country physicians is, and I call myself a country physician, although we call Mankato a city, the attorney must be taken from the Twin Cities for defense. That is wrong, gentlemen. It is wrong in principle and wrong in practice. I believe you have just as good attorneys in the Twin Cities as we have in the country places, and I have no doubt the attorney of the Association is as good as any. I am not saying a word against him, but here is the point. We have good attorneys in the smaller places; they are very competent men, and are acquainted with the people; they are acquainted with the jurymen and acquainted with the physicians, as well as the patients of the physicians. How would you feel in the smaller places if some family physician, for example, should send to St. Paul, Minneapolis, or Chicago, and bring out a physician to do his business, not as a consultant merely, but to do his business? You would not like it. Our attorneys do not like it. Our attorneys and our patrons are paying a good many dollars during the year for services, and they feel when we have a case we should employ them, and not send to the Twin Cities for an attorney. You say that the Twin City attorney has a local attorney to aid him. That is true. He may have the local attorney select the jury or do something of that kind, but the Twin City attorney assumes the defense of the case every time, and the local attorney is simply brought into the case. He sits there, and merely helps to select the jury; and our best attorneys do not like that. There are two serious objections to this defense: First, it does not protect us against a verdict, and it compels us to take an attorney from the Twin Cities or not have any attorney at all.

There is another objection. It is absolutely obligatory upon the part of every member of the Association, whether he desires to be a member of the insurance association or not, to be assessed one dollar, and his dollar must be paid or he is not a member of the State Association. That is a wrong feature in it. Are you going to compel me or that man to go into some insurance association whether I want to or not. That is a kind of gag law which I do not favor.

A year ago I refused to pay my dollar to this Asso-

ciation because I did not use it and did not intend to use it, yet I have to pay this dollar. I am not alone in this opposition. I believe the physicians of Mankato and vicinity will almost to a man hereafter refuse to pay this dollar because they are getting no benefit from it. They do not want to belong to it for the reasons I have given. They belong to other insurance companies on which they can rely, and those companies pay the verdict, consequently as a body we refuse to pay this dollar and we will see whether an association of this kind can legally demand of us a dollar for insurance or else be expelled from the Association. I believe we will make it a test case, although I hope it will not be necessary.

There is another feature that I want to mention. No physician is to receive the services of the State Association in a case of malpractice unless he has an x-ray taken. This proposed amendment is a pretty good suggestion, but there is not a physician practicing in the country but what has cases far out in the country where he cannot have an x-ray taken, and the trouble is a great many of these x-ray machines are no good.

DR. J. L. LYNCH: I am not able to discuss this question as forcibly as Dr. Andrews has done, but I feel as forcibly as though I were able to discuss it. He started to speak about the x-ray when the President cut him short, because of the five-minute limit. He spoke of physicians in the country who are not in possession of the x-ray, and doubtless they are not in possession of an x-ray machine of the portable kind. Dr. Andrews started to say that a great many of these x-ray machines are not reliable, and the physician in the country should take his patient to one of the large cities where they have good x-ray machines, but it takes the consent of two to do this,—the patient and the physician.

There is another thing: The local attorneys have always been very good to the doctors, and have always discouraged suits against doctors. Somebody comes to the local attorney with a suit against a doctor for malpractice, but the local attorney discourages it. It comes back to the same point that the local attorney realizes what we are doing, and knows we are getting into trouble. If we have a lawyer come from St. Paul or Minneapolis to defend us, the local attorney will not discourage these suits as he has in the past. Probably this accounts for the increase in the number of malpractice suits.

Another feature in connection with this matter is, that a great many doctors are under the impression that we are getting great protection. They are busy men, especially those in the country, and they do not stop to think. They think if they get into trouble they are being protected, and they neglect to take out proper insurance in order to receive proper protection. They think we are protected, but in reality we are not. This is not a feature of protection according to my view of looking at it. When men go into the practice of medicine, if malpractice suits are likely to be brought against them, they should take out proper insurance to protect them.

DR. A. D. HOIDALE: I agree to a great extent with what Dr. Andrews has said, and I think he is right in many particulars; and still it would seem as though we are taking away the strong arm of the Association if we let this insurance go. Personally, I would not care if I had to pay \$10 or \$15 a year in order to get the



benefit of this insurance or an insurance that is really protective. Whether it can be had in that way or not, I do not know, but there is this to consider: if we had this protection in the Association itself, we should feel as if we were in it to protect one another.

There is another phase not touched on with regard to these suits of malpractice, and that is, that some of us who are members of the Association may be at the bottom of these suits sometimes. If we would think more often when some one else's patients come to us, and do and say the proper thing, there would not be as much likelihood of suits of malpractice being instituted, and perhaps some of them would not be started. I speak feelingly along that line because of something that happened to me lately. I happened to have had three cases of fracture at about the same time. One patient, who was getting the very best results, was a man who came from the Lord knows where. He worked out in a harvest field and did not have a cent to his name. A farmer's horse fell over on his leg, and broke it. After he was able to get around more or less on his feet he went up to one of my brethren in Tracy to have him look at his leg to see whether it was all right. A doctor told him kindly he thought the result was very good indeed; that he had no reason to complain. He was not satisfied with that, so he went down to Mankato, and a few days later I got a letter from one of the gentlemen of the Mankato Clinic telling me that this man had been there and that they had taken x-rays of the leg, and they also kindly told the man that he had a splendid result. He was one of those fellows who usually bring these suits,—a man absolutely without means, practically a bum, who was looking for a chance to get a little money. Had he gone to some doctor, and been informed that the leg was not just right, I should have been in trouble. Thus you see the cause of these suits may sometimes be laid at our own doors; and that is one thing that ought to be impressed more strongly upon the members of the Association.

DR. J. H. BEATTY: I think this is one of the most important things connected with the membership of this Association, and if it is going to cost more than one dollar a year I am willing to pay the extra cost. It looks to me as if we ought to double it. If we are to have insurance, do not make it half insurance. Let us have insurance that will protect. If my patient is twenty miles in the country, and it is 40° below zero, and an x-ray cannot be obtained, and I should get into trouble, the insurance feature should protect me just the same. It is an absolute impossibility to get facilities for having an x-ray taken out in the country. Let us have an insurance that will not leave anything to be wished for. Personally, I should dislike very much to see this feature of our Association knocked out.

Another suggestion is with reference to the attorneys on the other side. We call them shyster chasers, and very frequently they are called ambulance cases in the legal profession. I think it would be a good idea to publish in our suits the names of the prosecuting attorneys because some of them may have a reputation behind them, or may not like to make one of this kind. A certain suit that was brought against a doctor was an absolute failure because they could not get witnesses to testify against the doctor. That is the condition we want. As physicians we sometimes scrap and pull each

other's hair in societies, and cut each other's throats, you might say, but of the many doctors in my county there were not found two who would testify against a physician who we considered had done his best in a case, although the result was not perfect. Let us continue this insurance measure. It is a membership-getter, and, I believe, if we drop it we shall lose in membership. It is too important a thing for us to drop.

DR. E. W. BUCKLEY: I have not any personal interest in this matter, one way or the other, for the major part of my work is of such a character that I am not exposed to lawsuits at home. It seems to me that we are wasting a great deal of time over a small financial consideration,—one dollar a year. It is time to discuss this phase of the question much more seriously when we have exhausted our funds in this work. I do not regard the protection of the Minnesota State Medical Association from the attorney's standpoint at all seriously. It has, however, a moral effect that appeals to me. I feel I am protected by every member of the Minnesota State Medical Association in case a suit is brought against me. There is no medical man of any standing but what should belong to the State Association; and, if he does not and appears against me, one of the first questions I would have to ask him would be whether he is a member of the State Association or not. If he is not a member of the State Association that would have a tendency to discredit anything he might say with a jury. I pay a dollar for that protection, and I would not hesitate to pay another dollar for any other member who did not want protection so long as I could have it.

We are a state body. We cannot be expected to go into every small town, and select, or permit a member of this Association who has been sued, to select, an inexperienced attorney, one who is inexperienced in this particular line of work. A railroad company would not do that, and railroad companies have more suits for larger amounts than we have. They employ expert counsel; and when they think it advisable they always employ associate counsel from the vicinity in which the suit is to be brought or tried. I have a fairly good acquaintance among railroad attorneys, and they say they are largely handicapped by local prejudice due to the fact that they come from other places. When a local attorney is engaged by an expert attorney of a corporation from another city, it is considered an honor. He is supposed to pick the jury; is put on for the local effect he may have, and is paid for his services.

It seems to me, the arguments that have been advanced against medical defense do not weigh materially against the moral effect of this provision. There is no individual who can prevent me or anybody else from taking a policy in a defense company, and while I am not certain on this point, yet, if I remember correctly, in reading many of the laws that come to me from the companies that defend people, they reserve the right to employ their own attorney. I may be wrong about that. I think, however, they do; and, if not, I think they would expose themselves to great risk. We want an expert who tries, not one, but thousands of these cases everywhere. Some of these cases are difficult to handle. You would not think of calling a general practitioner when it is a question of interpreting the x-ray.

We want this just as broad as it can be made, and if every member of the Association in every part of the state feels that the mantle of protection of the State Medical Association is thrown around him for one dollar, it tends to strengthen the Association among men who cannot afford the time or the money to come to the meetings of the State Medical Association; and, if they come to these meetings, they sit in the back of the room, and do not know anybody. A few now and then may attend the meetings, and even though they do not come into immediate contact with the other members, they feel they are protected against sharks and crooks who want to get their hard-earned money. If we should drop this defense it would be a step backwards, and I hope it will be continued.

DR. THOMAS F. QUINBY: I assume that most physicians carry indemnity insurance other than that afforded by the State Association. I am not familiar with the provisions of these policies, but my impression is that they are to be co-defendants with the State Association, and that the verdict is apportioned pro rata. I would like to rise to a point of information. Probably Dr. McDavitt can answer my question, namely, whether most of these people do not have insurance in other associations, and whether those associations in accordance with the provisions of their contract do not help the cost of the defense. That has been my idea in regard to it.

THE SECRETARY: Under our by-laws we are not permitted to divide responsibility at all. We either take a suit or refuse it. Our by-laws are explicit in that respect. We do not divide responsibility with any insurance company whatsoever.

DR. NIPPERT: Would the fact that a member of the State Medical Association carries insurance in the Association prejudice him from carrying any other insurance?

THE SECRETARY: I do not think so.

DR. R. J. HILL: You have to elect which one shall defend you. You cannot take both. If you have State Association insurance and Fort Wayne insurance, you can decide which one you will have to defend you.

THE SECRETARY: I would like to correct the doctor. Regular insurance companies do not object to dividing responsibility and dividing expense, but our state organization refuses absolutely to divide responsibility, so you can see the unfortunate position it would place us in. That, you understand, is not optional at all with the officials of the Association. That is stated explicitly in our by-laws.

On motion the House of Delegates adjourned until Friday, October 13, at 9 A. M.

## SECOND SESSION—FRIDAY, OCTOBER 13, 1916

The House of Delegates met at 9 A. M. and was called to order by the President.

Dr. Hill, Chairman of the Committee on Credentials, reported on behalf of that committee the names of additional delegates who had registered.

The minutes of the previous meeting were read and approved.

### ELECTION OF OFFICERS

The election of officers being the first order of business, nominations were made and the following officers were duly elected: President, Dr. H. M. Workman, Tracy; First Vice-President, Dr. J. H. Adair, Owatonna; Second Vice-President, Dr. A. C. Rogers, Faribault; Third Vice-President, Dr. H. M. Johnson, Dawson; Secretary, Dr. Thomas McDavitt, St. Paul (re-elected); Treasurer, Dr. Earle R. Hare, Minneapolis (re-elected); Councilors, Drs. W. A. Dennis, St. Paul; J. A. Millspaugh, Little Falls, and C. E. Persons, Marshall; Delegate to the American Medical Association for two years, Dr. Harry P. Ritchie, St. Paul; Alternate for two years, Dr. W. H. Magie, Duluth.

### PLACE OF MEETING

As to the place of meeting, Duluth, Mankato, and St. Paul were nominated. St. Paul, having received the largest number of votes, was declared as the next place of meeting. The time of meeting was left to the decision of the Council.

### DELEGATES TO THE A. M. A.

DR. J. C. LITZENBERG: Something like fifty members from Minnesota attended the California meeting of the American Medical Association, but the delegate and alternate to that meeting were unable to attend. I would like to ask if there is any provision whereby these vacancies can be filled by the President, and would it be constitutional to propose such a thing?

THE SECRETARY: Not without an entire change in the constitutions of both the American Medical Association and the Minnesota State Medical Association.

DR. WORKMAN: I would like to ask the Secretary if it would be possible for the Council to elect a substitute (alternate) for delegate?

THE SECRETARY: There is no provision in our constitution at the present time for that. I do not understand why a constitutional provision of that kind might not be inserted, however; but it would be a change from our present methods.

DR. LITZENBERG: If it does not conflict with the constitution of the American Medical Association, I will give notice of presenting such an amendment to be acted on next year, but if it conflicts with the American Medical Association it would be useless to do so.



THE SECRETARY: It might be well to take this up and to get the American Medical Association constitution amended to satisfy the Minnesota State Medical Association if they so desired. Perhaps they would do so if proper representation were made.

DR. LITZENBERG: I move an amendment to our constitution or by-laws, making it possible for the Council, which is always in session, to appoint a delegate to the American Medical Association in the place of either alternate or delegate who cannot attend.

#### APPOINTMENT OF COMMITTEES

THE SECRETARY: There is nothing further except the appointment of committees which the House usually delegates to the incoming president. There is the election of two chairmen for the sections on surgery and medicine.

DR. R. J. HILL: I move that these appointments be left to the incoming president, and also the appointment of committees.—Seconded and carried.

#### MEDICAL DEFENSE

THE SECRETARY: The next order of business is an amendment to the by-laws as proposed by the Council at the last meeting which is to come up now.

DR. WORKMAN: This resolution did not originate with me, but with the Council, and so I will withdraw the first clause, and offer this resolution:

RESOLVED, That the Association may decline to defend an action where the claim malpractice is entered as a defense to a suit for a bill, unless the attempt to collect the bill by suit is made within one year after the services were rendered.

THE SECRETARY: May I explain the offering of this amendment to our by-laws? I think eight out of ten of all the suits we have had to defend have been suits that, in the first place, were an answer to the attempt of the doctor to collect a bill, usually a bill that was anywhere from one to three or five years old, whatever the statute of limitation is. This was somewhat of a surprise to the committee. Five years ago, when we started in the defense of these suits, because, strictly speaking, they are not malpractice suits, we found it was just an attempt on the part of some individual who did not desire to pay his doctor's bill, and some lawyer to whom the individual has appealed would set up that as a defense against him, in order to prevent the doctor from collecting his bill. The House of Dele-

gates took this matter into consideration at one of our meetings. When they saw that this was to be the kind of suit we should have to defend, they instructed the Council to accept these as malpractice suits and defend them, which, I think, was wise. But now we have run across this uncomfortable condition of affairs in defending such suits. These suits have been easily defended, just as easily as ordinary malpractice suits. I think four out of five of all the suits of that kind never got into court. When they saw there would be a fight, that would be the end of the malpractice suit. In one or two instances a bill has been allowed to go so long that it needed all the corroborative evidence necessary to make a successful fight. For instance, they wanted witnesses to assist the doctor and the Council in fighting such suits, but the witnesses were not there or they could not be obtained, so that it would cost more than the suit is worth to get them. The idea is, that a physician should attempt to collect all bills within a year. It does not necessarily say that they shall throw out these cases, but it gives the Council and the committee in charge the opportunity of fighting these suits, but they have the privilege of refusing these cases if a suit is brought more than one year after the services are rendered.

DR. R. E. FARR: This amendment should not prevail. There are many reasons that occur to me why it should not prevail. In the first place, Dr. Nippert has just said we have many suits set that we cannot justly dispose of in a year. I think most of mine begin after a year, so that the one-year clause, if it does prevail, is altogether too short. In the second place, a weak point about our insurance is, that it is perhaps not broad enough. This would further narrow it. Does not our insurance cost too much? But it does not cover us sufficiently well and that is why a great many men object to it. I was a member of the committee that considered this subject the first time, and it was the best we could do considering the amount to be charged. My own impression is, that we ought to have the same kind of insurance that other companies have, and pay nearly as much and get rid of our other insurance. It seems to me, if we hem this thing in by any more restrictions, just as in the x-ray clause, which has been withdrawn, it will further weaken our insurance instead of strengthen it.

DR. E. W. BUCKLEY: I find myself in disagreement with Dr. Farr because this refers, not



strictly to malpractice suits, but to those countersuits which the Secretary has said are brought in an effort to avoid payment and to scare the doctor into withdrawing his action for services rendered; and I can readily understand how much more quickly a member of this Association might sue for \$75, and it costs the Association \$250 to defend it. We could better afford to pay his bill; and this matter should be left with the Council to decide each case on its merits. All countersuits for malpractice, where there has been a suit for recovery for professional services, should be referred to the Council with power to act. The Council can investigate each case, and induce the doctor, if he has not evidence to enable him to put up a good defense, to withdraw the suit. No doubt that has been done, and that would end it in all probability. The whole matter of these countersuits for malpractice should be left to the Council with power to act.

I do not like to amend the resolution as offered and cloud the matter before us, but, I think, in an effort to restrict this matter we should not put it hard and fast where it should be left broad enough so that the Council can handle it. I would not have a doubtful clause because of the dissatisfaction which it might create. The matter should be left to the Council with power to act.

DR. R. J. HILL: It seems to me that this resolution covers the very ground Dr. Buckley makes. It gives discretionary power to the Council as to what action they will take; and, further, it will have the advantage of stimulating them to try and get started within a reasonable time. It leaves the Council to decide, and I can see no objection to that.

The Chair put the amendment, but as there was some doubt as to the result of the vote, Dr. Scofield called for a rising vote, with the result that twenty-five delegates favored the amendment, while five were opposed to it. The amendment was declared adopted.

#### REPORT OF DELEGATE TO THE NATIONAL LEGISLATIVE COUNCIL

THE SECRETARY: We did not hear in the reports from committees from our delegate to the National Legislative Council. I move we hear from him now.—Seconded and carried.

DR. W. L. BEEBE, St. Cloud, Delegate to the National Legislative Council, presented the following report:

#### REPORT OF THE REPRESENTATIVE TO THE NATIONAL LEGISLATIVE COUNCIL

As the Minnesota member of the National Legislative Committee at the meeting of the Council on Health and Public Instruction, at its last mid-winter conference in February, 1916, I have to report that it was the most successful of the many meetings in which I have represented this body. Things more tangible and subjects more practical were discussed.

Two most important topics, handled in a most practical manner, were Medical Practice Acts, and a comprehensive survey of the whole status of Health Board subjects in this country.

There was a registration of three hundred and thirty members, most of whom were among the leading medical men of their respective states. The chairman of the meeting was Dr. Henry B. Favill, of Chicago, who, as you know, died only a short time later in the month. He was one of the greatest medical men in this country, and to his active work as chairman (he was chairman for many years) was largely due the success of the meeting. Dr. Frederick R. Green, who for many years has been the Secretary of the Council, is, beyond any question, the most active, energetic, and efficient secretary that any medical organization ever had. As successor to Dr. Favill, our Dr. H. M. Bracken was elected temporary chairman of the Council on Health and Public Instruction. For years Dr. Bracken has taken a very active part in these annual meetings, and has been one of the six members of the Council, and is exceptionally well posted on all subjects pertaining to Health Board work.

One of the most interesting papers read at this meeting was that of Gov. Hodges of Kansas. The Chairman, in introducing the Governor, said:

"Governor Hodges was the first governor who ever saw the importance of, and assumed the responsibility for, medical legislation of his state. He was the first governor who ever attached sufficient importance to the subject to appoint a commission to carefully study the question of medical practice acts and report to the administration."

Another excellent paper was by Professor I. R. Hudson, of Tennessee, not an M. D., but secretary of the Tennessee Board of Preliminary Examination. His subject was "One Year's Experience with the New Law in Tennessee."

A paper entitled "What should be the Provisions of a Model Medical Practice Act," was among the most interesting read. It was by Dr. W. I. Means, of Columbus, Ohio.

Dr. Walter L. Bierring, of Des Moines, Iowa, secretary of the Federation of State Medical Boards of the United States, read a good paper on "A Model Practice Act."

Dr. Royal S. Copeland, of New York, read a paper entitled "Remarks on Medical Practice Act."

A general discussion of these papers by a dozen men from that many different states, you can readily see, would pretty thoroughly exhaust the subject.

The Council on Health and Public Instruction of the American Medical Association has made, through Dr. Charles V. Chapin, of Providence, R. I., a survey of the situation, activities, and other essential facts with regard to the various state boards of health. Dr. Chapin's paper was "State Health Organization."

Dr. J. W. Kerr, Assistant Surgeon-General, United States Public Health Service, read a paper on "Some Essentials to the Development of Efficient Health Organization." Dr. Cressy L. Wilbur, Expert Special Agent, United States Bureau of the Census, delivered an illustrated lecture, entitled "The Doctor and Vital Statistics."

With the above list of papers, you can readily realize the truthfulness of my remark, that this was one of the most successful meetings in the history of the Council.

W. L. BEEBE, M. D.

THE PRESIDENT: I certainly feel that we have in Dr. Beebe a most efficient representative, a man who does his work well, who takes time from his professional duties to attend the meetings of the National Legislative Council without compensation, and always gives us a good report.

#### EXPENSES OF THE MEETING

THE SECRETARY: I think it might be well for someone to make a motion giving the Council authority to pay the expenses of the Association during the next year.

DR. SCOFIELD: I move that that authority be given the Council.—Seconded and carried.

#### INCREASE OF DUES

DR. R. J. HILL: I would like to offer the following amendment to Article II of the by-laws: "The annual dues of the Association shall be four dollars instead of three dollars." (To lie over until next year for action.)

#### COPENHAGEN SNUFF

At this juncture, on motion, which was duly seconded and carried, Dr. Haggard was granted the privileges of the floor to make a statement concerning Copenhagen snuff.

DR. G. D. HAGGARD: When I was at Rochester last year Dr. Wilson called my attention to an article which appeared in the *St. Paul Medical Journal* from Dr. Hielscher, of Mankato, in which he cited his observations of a number of cases where Copenhagen snuff had been used with very detrimental effects, and wished me to bring it before the Legislative Committee of the House of Delegates of this Association. I was a delegate that year, but not this year. There was no legislative committee last year, as the state legislature was not in session. This year there will be. Therefore, Dr. Wilson requests that this body take cognizance of this matter in some way today.

Since that time another article has appeared, giving observations of a number of cases which have come under the observation of members of the Mayo Clinic. These articles parallel each

other, and they call attention to the fact that there is a law in North Dakota in regard to this matter, prohibiting the use of snuff because of its danger and the damage it does. Dr. Ladd, Commissioner of Foods and Drugs of North Dakota has made some investigation pharmacologically upon this drug, and finds it is distinctly different from straight tobacco, and I think perhaps that presents to you all the material I have upon the subject. But if some person would present this it would be a good thing. Dr. Wilson has suggested that it be recommended by someone in the Department of Pharmacology, and that a resolution be placed in the hands of the Legislative Committee this year in order to see if something cannot be done for the restriction or prohibition of Copenhagen snuff.

#### THE WILLMAR STATE HOSPITAL

DR. J. T. CHRISTISON: I offer the following, and I move its adoption:

WHEREAS, the Minnesota State Medical Association is informed that an effort is on foot to abandon the Willmar Hospital, for inebriates and drug addicts; therefore, be it—

RESOLVED, that the State Medical Association is opposed to the plan, and urgently requests the State Board of Control and the legislature to continue and maintain the inebriate farm for its original purposes.

Seconded and carried.

#### OFFICIAL JOURNAL

DR. BUCKLEY: I move that the matter of an official journal be now taken up for consideration. As I understand, the contract with the present journal expires the first of January, 1918. I believe the matter should be discussed at this meeting.—Seconded and carried.

DR. BUCKLEY: This is one time I am sorry I am from St. Paul, because what I may say may appear as though I am influenced by the fact that I come from St. Paul, and that we have a medical journal there in which I am personally interested, but with which I am not personally connected except in so far as it is the official journal of the Ramsey County Medical Society.

I believe that the medical profession does not occupy the honorable position before the American people which it deserves, and I think a great many reasons for that rest with ourselves. We have not been as particular in keeping up the standard of the medical profession as we might have been. It is true, the medical colleges are raising their standards and have raised them, but when we get amongst ourselves we must confess that is largely owing to legislation. I

never heard of any voluntary raising of the standards at the time medical colleges were under the control of the individual members of the medical profession. The trend, fortunately, during the last twenty-five years has been to put medical colleges under state or great university auspices and control. To that extent the standard has been raised.

Now, I think the standard should be raised also by the medical societies, to say nothing about the individual members of these societies, and I am a firm believer in the control of all matters medical by medical men. We ought to take a decided stand in regard to the advertisements that appear in a medical journal which is conducted in the interest of this Association. No medical journal should be dependent upon advertising for its existence. It ought to be supported by recognized local or state societies, and I think the time has come when a local society can publish only a local journal; and it is a mistake to have the reading matter sandwiched in between advertisements in the front and back. We ought to have a big representative medical journal in every state, and that journal should be supported by the State Medical Association. If there is any profit from it it should go back into the treasury. I have no personal interest in this, but a year from now the contract with the present journal expires. It takes time to organize and get a journal into proper shape. If we want a journal that is representative of a great organization, such as ours, unless we take this stand, we can be easily accused, and cannot successfully defend the charge, that we are just as bad as the proprietary men, and just as bad as the counter-prescribing druggists. We should take a decided stand in regard to the medical journal that is to represent us, and should see to it that it purges itself of objectionable and unethical advertisements.

DR. H. B. SWEETSER: This is a very important matter, and I agree with Dr. Buckley thoroughly when he says that a medical journal should represent the highest type of medical thought. We have been represented by a journal for a number of years, and I think it is only proper, if we are not being represented properly, that we listen to an explanation of why we have not. I therefore move that the representative of THE JOURNAL-LANCET (Mr. Klein), who represents us at present and has represented us for a number of years, be allowed the courtesy of the floor to tell us what he has done, why he has

done it, and what he expects to do, if THE JOURNAL-LANCET is continued as the official organ of our Association.—Seconded and carried.

MR. W. L. KLEIN: I thank you very kindly for the opportunity to speak, but it seems to me it would be more appropriate if I were called upon at a later stage to speak on this matter. The motion is that this subject be taken up, and when that motion is passed the subject can be discussed.

THE PRESIDENT: The motion of Dr. Buckley was put and carried.

MR. KLEIN: I can speak for myself, and Dr. Jones can speak for himself. I am sure the cause of a good deal of the complaint is entirely without foundation, and I think I can show you conclusively it is without foundation, but something more definite than what is before the House of Delegates at this time will have to be brought up before I can speak upon the subject. I have nothing further to say at this time except that I cannot make a better speech than Dr. Buckley has made, and I stand heartily with him; but if you are to establish such a journal as he proposes, each of you may expect to pay \$10 or \$15 per year for it. I cannot speak on the motion further, but may have something to say later, when the subject has been presented more definitely.

DR. F. J. SAVAGE: Dr. Buckley has referred to the matter of advertising. The *St. Paul Medical Journal* has been as guilty in the past as THE JOURNAL-LANCET in accepting objectionable advertisements. Our advertising pages are being purged to meet the requirements of the American Medical Association. Whether or not politics comes into the regulation of the standards as prescribed by the American Medical Association, is not something for us to discuss. It is the only standard we have. The *St. Paul Medical Journal*, after January 1 of next year, irrespective of whether it is made the official organ of this Association or not, will have had its objectionable advertising contracts expire, and they will not be renewed. In other words, it will conform to the standards of the American Medical Association. On this particular point I would be glad to hear from Dr. Rothrock, who has been a member of the Publication Committee of the State Association, with reference to his conversation and his understanding of the matter as between Mr. Klein and himself.

DR. J. L. ROTHROCK: I do not know that I have anything in particular to say on this sub-



ject. The question is one which is a matter for the House of Delegates to decide when they let the next contract.

So far as the present arrangement of THE JOURNAL-LANCET is concerned, it is true that during the lapse of the time since the contract was made, a few advertisements have been carried which have been objected to by the Council. That matter was taken up by Mr. Klein and the Secretary of the State Association and certain members of the Council, and for the time being the particular advertisements carried that were objected to were allowed to be continued, owing to the fact that the contract with those parties from whom the advertisements were secured ran for some time. Mr. Klein will no doubt inform you of his position in the matter, and I must say this for THE JOURNAL-LANCET, which is now publishing our proceedings, that they have, with a few exceptions, carried less objectionable advertisements than most journals.

DR. HARRY P. RITCHIE: I have heard this matter discussed in the House of Delegates, and so far as I am personally concerned it seems to me that our publishing committee has come forward with a proposition to the Association that is so generous that really the State Medical Association, through its House of Delegates, could hardly refuse it. The whole point to settle is whether it is the proper and desirable thing for the delegates of the State Medical Association to have a paper over which it has absolute control without any possibility of outside influence. I feel as though the thing should stand on its own merits. If Dr. Savage can present the proposition which he has, it seems to me it will give us wonderful opportunity to develop a highly scientific journal. The Ramsey County Medical Society is in the publishing business, and has a splendid journal, which was maintained at first and kept up only by the high initiative and scholarly qualities of Dr. Burnside Foster, but it has reached a point where it is a success, and it is published within the society and we have control over it. It is not only the pride of our members, but it has been the source of substantial profit, so that the question of publishing a journal within the profession is an established fact. The Publishing Committee feel that they could extend the functions of this journal by publishing contributions of this Association, and when you hear the proposition, you can hardly refuse it.

DR. SAVAGE: Some time ago a committee was appointed from the Hennepin County Medical Society to confer with the Ramsey County Medical Society on the matter of a joint journal. We recently had a meeting when three representatives from Minneapolis met with the Editing and Publishing Committee of the *St. Paul Medical Journal*, and the consensus of opinion at that meeting was that if this proposition we are going to make goes through, this journal should be conducted jointly by the Hennepin and Ramsey County Medical Societies. It would take considerable time to work out the details. The *St. Paul Medical Journal* is in the hands of an editing and publishing committee, and any change as radical as that should be referred to the society at large for sanction. There were present four out of five of the Editing and Publishing Committee, and I simply wish to state that that was the opinion expressed at that time by four out of five of the Editing and Publishing Committee who have charge of the *St. Paul Medical Journal*, and their recommendation would be accepted by the Ramsey County Medical Society. If this proposition goes through, we feel this journal can be made doubly strong, so that the income can be increased enough so that the Hennepin County Medical Society could not lose what they are getting in the way of exchanges, nor would the Ramsey County Medical Society.

THE PRESIDENT: I presume this is the proper time to present any proposition which any delegate may have.

DR. BUCKLEY: I have no great sympathy personally with any fight between THE JOURNAL-LANCET and the *St. Paul Medical Journal*. They are both small journals. I have no influence by reason of the division, neither have I great sympathy with the plan that has been partially outlined by Dr. Savage, that this be a Hennepin County Medical Society journal instead of a Ramsey County Medical Society journal. That is not extending very much when you consider it from a state standpoint. I would like to see a journal published under the control and auspices and management of the State Medical Association. Necessarily, such a journal would have to be published in some central place, and as we happen to have two journals, one of them should be selected. That is only fair and right in a business-like proposition. It has been hinted that we have plenty of time according to the Secretary. I do not think we have plenty of time. A year from now will be too late when this

contract is to be relet, unless you want to have such a contract as you have now. I think the contract should be let at this meeting, or that this House of Delegates should appoint a committee to go into the matter thoroughly and report at the next meeting what kind of journal should be made the official organ of this Association. Those are my ideas.

So far as the contract is concerned, the only trouble would come between an official journal owned by a private corporation; and this no doubt would be a violation of the contract by reason of publishing objectionable advertising matter. There should be no contract except by vote of this body. The journal should be published by physicians; then you can enforce the contract because physicians are members of the local and state medical societies, and if guilty of unprofessional conduct we have recourse to that.

MR. KLEIN: I want to reply to Dr. Buckley. The situation here, gentlemen, is entirely one of misapprehension. You have a perfect right to throw out of THE JOURNAL-LANCET any advertisement you may select. You have always had that right. You have the same right over the publication of THE JOURNAL-LANCET as you would have over the ground upon which this building is situated if you rented it for ninety-nine years without restrictions. The difference between ownership and an unrestricted lease is the difference between what you propose and what you have. The cases are exactly parallel. The Council has a right and can say at any moment what shall or what shall not appear in the advertising pages of THE JOURNAL-LANCET.

If this House of Delegates would refer this whole matter to a committee, it would readily dispose of it, and on our part we will adopt any standard that you want adopted, and I personally would favor it. I have been paying the cost of restricted advertising out of my own pocket heretofore, and you would not, as honorable men, want me to continue to do so with further restrictions. The question is whether these gentlemen can give you a better journal or do the work any better than we have done. If this proposition is put before a committee, there will be no hard feelings.

I desire to call attention to one matter, namely, that I have always taken the position that Dr. Buckley takes with regard to publishing a high-class journal. It is the only kind of journal to publish, but it would cost each member from

\$15 to \$20 to do so, particularly such a journal as you have in mind; and that you can hardly do. We can publish a journal, and take only proper advertising; and that is what we want. You have absolute control of the journal, and the contract says so; and the only thing is whether or not we are both living up to the contract. If we go on another year, and have a committee appointed, the whole thing will solve itself without any trouble. I am satisfied of that, and, it seems to me, that is the way it ought to be settled.

DR. SAVAGE: I would like to present to the House of Delegates at this time the following proposition from the Ramsey County Medical Society:

To the House of Delegates of the Minnesota State Medical Society: The Ramsey County Medical Society offers the *St. Paul Medical Journal* to the State Association as its official organ for five years, beginning December 31, 1917, under the following conditions:

1. The journal to be called the "Minnesota Medical Journal."
2. The journal to be sent to each member of the State Association for one dollar per member per year.
3. The journal to publish the transactions of the House of Delegates and all papers presented by the Publication Committee of the State Association.
4. In order that this journal may truly represent the medical thought of the entire state, each component county society which numbers one hundred members or more, or such other division as the House of Delegates may offer, will be entitled to name one of its members as associate editor of the journal. This privilege shall also be offered the Minnesota Pathological Society and the Minnesota Academy of Medicine.
5. The advertising policy of this journal shall conform to the standard of the American Medical Association.

DR. R. E. FARR: Before any motion is made, I want to mention a few points I have in mind. It seems to me that it is time we should get away from post-mortems. We do not care particularly, in this discussion, about the past. We are concerned with the future, and we are a body of delegates of medical men representing the State Medical Association, and the proposition is being discussed of a medical journal to represent us. Although I voted to extend the courtesy of the floor to Mr. Klein, I do not see any reason why we should discuss this subject at all much further. I do not see why Mr. Klein should offer the suggestion that this be left to a committee. It is a matter for us to consider, and I believe it is right to call on Mr. Klein with regard to these things at the proper time, but not now. We should discuss now the future,

not hold post-mortems on what THE JOURNAL-LANCET has done or what the *St. Paul Medical Journal* has done.

It seems to me it is too bad we cannot get together and have in the future a medical journal upon which the minds of all medical men of this state can concentrate. I do not care how it is brought about. I do not represent THE JOURNAL-LANCET, and I am not from St. Paul. I represent the medical men of the state of Minnesota, appointed by myself to do that. Now, it seems to me that we really ought to get busy on this thing; whether by the appointment of a committee or what not, I do not care. I have talked with both of the parties who have been interested up to this time in running a medical journal. They both say they are willing to amalgamate after having their rolling stock properly appraised, and they will let the State Medical Association or the Hennepin and Ramsey County Medical Societies buy it and run the journal. Let them hire Mr. Klein to manage it or somebody else. But we ought to have a journal of our own. These are mere details. It is time to consider that subject now, and we have fourteen months in which to work it out. We ought to decide right now if it is possible to decide quickly. Everybody has been thinking about it, and we must all have our minds made up. We should decide now what we are going to do in the next fourteen months. We should forget St. Paul and Minneapolis; we should forget THE JOURNAL-LANCET and the *St. Paul Medical Journal*, and remember that we are medical men of Minnesota, and get our minds behind one good medical journal.

DR. W. A. JONES: THE JOURNAL-LANCET is prepared at the end of its contract to drop any objectionable advertising that the Publication Committee may wish. That means within a few months. If THE JOURNAL-LANCET is going to be embarrassed financially in so doing, it is the duty of the State Association to back it up. We have had a good many years of experience, and I think you will all agree with me when I say that THE JOURNAL-LANCET has improved from year to year, and we want to make a better and bigger journal; but if you know anything about medical journalism, you know it costs money to conduct a journal. Now, we are prepared, as I have said, to drop out the few objectionable advertisements we are carrying; and I will say there are very few, and the *Journal of the American Medical Association* says there are very few.

We will do that, and conform to the standard of the American Medical Association; but we do not want this matter to come up year after year, and we be heckled and heckled about it. We want to do good work, and if we are constantly embarrassed it is going to be difficult to do it.

I would like to see a consolidation of the two journals. I would like to see a bigger journal, but I still maintain, as editor of THE JOURNAL-LANCET, and I speak for the publisher, that we are doing the best we can under the circumstances. I believe I can say without hesitation that THE JOURNAL-LANCET is the cleanest journal published in the United States, and when I say clean, I mean with reference to its reading matter, its make-up, its typography, and in its freedom from errors. I believe our official stenographer, who has had a good deal of experience with medical journals, will bear me out in that statement. If I may be permitted, I would suggest that this matter be not hastily considered, that time be given to it; and it is no more than fair to say that a committee should take it in hand. If you want to go into the matter thoroughly; if you want to go into the financial end of it, and find out what we are worth, and where we are at, so to speak, if you will appoint a committee to do it, we will open our books to you for that purpose. But we want to continue the publication of the Minnesota State Medical Association proceedings; otherwise we will have to go on, and publish our journal as best we can. We are not going to lower the standard, but elevate it from time to time.

I think after the first of the year you will see a radical change in what you think is objectionable advertising matter. You must consider that advertisements are really necessary in publishing and conducting a medical journal, and, as Mr. Klein has said, you cannot afford as a state association to pay \$10 to publish your own journal. If you confine it to the cost proposed, it would be like some other little medical journals that come to us in exchange,—small, insignificant affairs, that amount to nothing. They have articles, and very little else. We try to give you everything we can. We publish a news item column for the benefit of the Northwest, as we have two other states, namely, North and South Dakota, and we keep all you men united. We keep you in touch with one another, and it is for your own interest we are doing this. The journal is not making any money out of its sub-



scriptions. Fifteen hundred dollars will not pay the cost of the journal. It must have advertising, and clean advertising, to carry out its purpose.

DR. LITZENBERG: There seems to be a general consensus of opinion that what is desired in this state is a better medical journal. There are limitations to the improvement of the present journal, largely financial perhaps. It would seem from the consensus of opinion of the representatives of the *St. Paul Medical Journal*, the representatives of THE JOURNAL-LANCET, and others who have expressed opinions, that we ought to get together and publish one journal. We have had submitted to us a proposition from the Ramsey County Medical Society, and I would therefore move that all matters in regard to a state medical journal be referred to a committee of five; said committee to report to the House of Delegates for final consideration at the next annual meeting; the report to be previously furnished to every component society for consideration and recommendation. (Motion seconded.)

DR. FARR: I would like to ask for information from the manager of THE JOURNAL-LANCET as to whether or not, supposing the report of this committee a year from now is favorable to an amalgamation, and also the changes would apply to the *St. Paul Medical Journal*, it would be possible to take up the new medical journal. Assuming that the committee in its report favors amalgamation, what delay is there going to be on account of contracts and so on. In the past there has been delay, and that has been a very good excuse for certain things not being done on account of contracts. The question is how much we will be hemmed in a year from now when we attempt to do something tangible.

The *St. Paul Medical Journal* may have contracts for various things as well as THE JOURNAL-LANCET, and it seems to me we ought to get together and decide on doing something. We who know nothing about these things cannot anticipate them. Mr. Klein or Dr. Savage may step in and say, "We cannot do this or that on account of our contracts; that this or that thing is impossible," and then we are carried over for another year. We have to be very careful of the amount of time we give to this thing.

DR. BUCKLEY: Dr. Farr's request puts the publisher of THE JOURNAL-LANCET in an embarrassing position. Personally, I would not answer a question like that. Our contracts expire

on a certain definite date, and the only thing which would be a handicap would be the statement of either one of the journals going beyond the time.

MR. KLEIN: We will make no contract that is not subject to cancellation, and I am heartily in favor of publishing a clean journal. When I made my proposition as a layman it was different from the one made by the *St. Paul Medical Journal*. My record in this respect is a clean one. I stated that you should have absolute control, and that no contract would be accepted that was not subject to cancellation at any minute.

DR. FARR: I move as an amendment that this committee be given six months in which to make its report before the annual meeting of the society. (Amendment seconded.)

DR. JONES: I would like to ask this House of Delegates to urge upon the component societies to read THE JOURNAL-LANCET. We have announced two or three times, and almost have sworn to it under oath, that THE JOURNAL-LANCET is not controlled by anybody but the Publication Committee. I have heard statements made since I have been at this meeting that the Mayos and the Mayo Foundation controlled the journal. It is absolutely false. I have printed that two or three times, yet the men belonging to our component societies do not seem to know it.

I want to correct the impression that Mr. Klein is the whole thing. I have something to say about this journal. I dictate its policy. When advertisements are submitted that I do not approve of, I reject them; and when material is submitted for publication, it is my privilege to reject it or accept it, and I am going to continue my authority as long as I am editor. (Applause.)

The original motion as amended was then put and carried.

#### THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA

DR. E. L. TUOHY: I have a matter to present at this time which has been mentioned in the daily press since this Association has been holding its meeting here, and it relates to a proposed policy in connection with the University of Minnesota. Briefly, this policy is to abandon the idea of going to the State for development and maintenance of hospitals in connection with the University, both for teaching and research purposes.

In the summer I received a questionnaire; this questionnaire was intended evidently to

find out how the profession at large of the state felt concerning this matter of hospital development. It seems that the matter was taken up with the Minneapolis Civic and Commerce Association, and I have in my hands a report that has been considerably marked up by one of the members who assisted in making this report. To be brief, it seems that it is the desire that the University shall confine its clinical teachings, as it pertains to hospital work, to the University Campus. The desire is to elaborate it, and they feel that they have to go directly to the State to secure the appropriations necessary to enlarge the present hospital facilities from approximately two hundred beds to five hundred and fifty beds. In the next place, they do not feel like asking the state legislature to provide maintenance, even to care for all these patients on a charity basis. In the third place, in the effort to provide so-called full-time clinical teachers, the State does not feel able at this time to pay them a satisfactory salary, and therefore some other means must be devised to retain these so-called high-caliber men. To accomplish this, therefore, the basic idea of the University is that its hospital connections shall be put on a charity basis, which means going to the public for requests for a considerable sum of money to build these hospitals on the Campus, and, in the next place, going to the patients for the maintenance thereof. And the third principle involved is, that, in order to extend the income of the full-time teachers, they would have, in addition to their salary paid by the State through the University, permission to collect certain fees under certain limitations from patients and take care of patients in this hospital in connection with the University. The details of this scheme need not be gone into. The principles involved are very basic and fundamental, and it would seem a proper subject for this House of Delegates to take up.

I will quote briefly from this report. (Reading sections from the report.)

I would call your attention to this matter as stated in this report with the explanation I have already given, that funds may be obtained from any available source for the purpose of carrying on this work. They have outlined a scheme, however, whereby this privilege may not be abused. The number of beds might be limited, and so forth. They recommend the development of the department, and in so doing their duty will be to ascertain the relative ability of pa-

tients to pay for services. We are not unmindful of the fact that something can and ought to be done to make more available the uses of the medical-school clinical material in the municipal and county hospitals, etc. (Dr. Tuohy then read a section of the report whereby pay patients shall be exempted, and certain fees turned over to the full-time man.)

It would seem that the Medical Department of the University needs a reasonable amount of support because in the past, by reason of the magnificent support it has received, the University has attained its present high place. The representatives of the University with whom we have conferred are desirous of bringing about the best possible arrangement with fairness to all and favors to none.

I feel that this matter is one of extreme importance, and personal feelings should not enter into it. It should not be entered into without a thorough investigation. In the first place, if the University is not in a position where it can go to the people and get all the support it needs, there is something wrong with the people or with the University. In the next place, if we cannot afford to pay men of high caliber a sufficient salary, the subject ought to be thoroughly agitated, and in a wealthy state it would seem possible to right this.

In the third place, if the clinical facilities are not as they should be, and we have large centers of population, about 600,000 people in all, we had better close up the University.

I desire to offer the following resolution:

WHEREAS, the Medical Department of the State University has under consideration a plan whereby full-time clinical teachers on the Faculty shall be allowed the privilege of receiving pay for the diagnosis, treatment, and care of private patients upon the University Campus; therefore,

We, the members of the Minnesota State Medical Society, assembled in annual meeting, hereby express our firm conviction that this attempt of the Medical School of the State University to unite public service and private practice is unsound in principle, bad public policy, and contrary to the established ideals upon which the Medical School was founded.

DR. BUCKLEY: I second the resolution.

The Secretary read the following communication addressed to the President:

Minneapolis, October 10, 1916.

Dr. J. Warren Little, President of the State Medical Association.

Dear Doctor Little:

We understand the question of the University Hospital extension is likely to be proposed for discussion

at the annual meeting of the State Medical Association. Realizing in the brief period of the session of the Association little can be done by way of careful consideration of this problem, and courting the advice of representatives of the medical profession, we suggest to you that a committee of counsel (say, seven in number) be appointed who may represent all sections of the state to confer with and advise the committee which is in charge of this proposed extension.

Sincerely yours,

S. MARX WHITE,

Chairman,

R. O. BEARD,

Secretary, for the Committee.

DR. LITZENBERG: I am sorry Dr. Tuohy's motion did not go further. He is dealing with only one phase of this proposition, and to these other phases I wish to address myself for a moment.

Dr. Tuohy has spoken of the lack of support of the University, and said the State ought to get behind it. Those are the things we believe, and that is what we have been trying to do and trying to get for a good many years, and we did not get it. That is the reason why other methods were suggested. Let me talk of these other things because I am hoping the State Medical Association and the medical profession will get behind the University; but, whatever they feel they can do, we want to have the support of the State. We do not feel aloof from the profession. We want to be your state university; we want every man in the profession, whether he be an alumnus of another university or an alumnus of the Minnesota University, to be proud of and loyal to the University of Minnesota.

With reference to appropriations: The difficulty with the appropriation business is that this is a tremendous university and the demands for money are so appalling that the amount the Medical School is able to get is inadequate for its development.

Considering what has been said, it seems to leave the impression that the State Medical Association is trying to stand in the way of the development of the clinical department of the State University, but I have not the slightest idea personally that any medical man in the State Association wishes to do that.

Let me speak briefly of the per-diem patient class—the per-diem patient getting support from the public. There are two classes of charity patients,—the absolute-charity patient and the relative-charity patient. There is the patient who can pay a little, but who cannot pay ordinary medical fees, and it is that class of patients to whom the per-diem idea is addressed. There are

a good many patients who get into the Hospital when they ought not to. They lie about their financial condition; and no patient can get into the University Hospital unless you recommend him at the present time. He must come on the recommendation of a physician, the physician stating over his signature that the patient is unable to pay ordinary medical fees. What is the result? Many medical men send patients to the Hospital when we know that their statement regarding the financial condition of the patients is only partially true. You send them because the patients are unable to pay the usual medical fees, but these patients may be able to pay something; and that is where the abuse comes in. Under the per-diem plan, it is recommended that only patients be accepted in the University Hospital who you say can come under the per-diem plan. There are plenty of patients who have a little money to pay. They could pay their hospital expense or a part of what it would cost, but they could not come in unless you recommend them. I want you to understand that phase of the question clearly.

We are trying to raise money through subscriptions to build a hospital because we feel disturbed about appealing to the State for money. The whole University needs financial support, but we find difficulty in getting the appropriations we want for the clinical development of the hospital, and I hope you will think we are trying to make the best of a situation which seems to be a very serious one when it comes to building up our clinical department.

As to the motion made by Dr. Tuohy: I do not know that I want to say anything about it, but I wish the members of the House of Delegates would discuss the whole proposition, and, instead of bringing in a resolution condemning the University for what it is trying to do, and thereby putting your stamp of disapproval on our efforts, commend that which seems commendable, and condemn that which you seem to think is not commendable.

DR. H. M. WORKMAN: I do not know that I have a right to say much about this. While I agree in the main with what Dr. Litzenberg has said, I am opposed to allowing full-time professors in the pay of the State to charge patients money for their services other than that which they get from the State. We have an abundance of good clinical men now, and this idea of bringing in somebody else does not meet with my approval or with the approval of men



throughout the state, and never will. If they want to pay the present clinical professors more money—I do not care how much—let it be given to the men who have earned it. They have devoted their years of time to this work, and should have it. But I am opposed to bringing in somebody else, and thus run in opposition to the sentiment in the profession.

DR. H. B. SWEETSER: I would like to have Dr. Litzenberg continue the discussion concerning the point raised by Dr. Workman as to the method by which the income of the full-time professors shall be increased, and to ask him to explain to us how that can be done without interfering with the basic idea of a state institution run for state purposes unless limitations are imposed.

THE PRESIDENT: Is it the desire of the House of Delegates that Dr. Litzenberg shall continue this discussion? If there is no objection, Dr. Litzenberg will proceed.

DR. LITZENBERG: The plan contemplates a very strict limitation upon the amount of material that the men should receive. The proposition is to limit them to a very small number of beds, so that they will not have the opportunity of building up a large practice, and you should have a voice in what that limitation should be. But the idea is simply to let them have enough to supplement their income by a reasonable amount, and not by a large amount, and the proposition as it stands today is, that they be strictly limited to a very small number of beds. Does that answer your question?

DR. SWEETSER: No, not satisfactorily. I think the idea is this: If the present clinical men have given their time for years to their work, why should they import men on a salary and let them have something extra? The clinical men give this time and still continue to do so, and you do not need to import men to do that.

DR. J. W. BELL: We are drifting away from the question before us. As I read the resolution, it is a question of policy for the School; and we are requested to express our opinion as to the policy of the State University permitting private individuals to mingle their work with that of the State. We are all familiar with the past policy of the University of Minnesota. Up to this time it has commended itself to us. We have a medical school of which we are all proud; but without valid reason we are digressing from the past policy and are making an effort to enter upon a line of policy which in my judgment is

absolutely dangerous, namely, that of uniting public service with private practice. I believe this resolution states the matter clearly when it says it is unsound in principle, bad public policy, and contrary to the established ideals upon which the Medical School is founded. The question is, shall we continue the old policy or start in upon a dangerous one? This resolution is aimed at only one phase of the work, namely, we should continue the past policy. If men enter upon the work for good salaries, and their positions bring with their salaries a certain amount of prestige, and bring consultation work, they should have ample opportunity to carry out that work. If not, let us make an effort to give them a private hospital outside of the Campus, but let us not depart from the past policy and enter upon a policy that is absolutely dangerous, in my judgment.

DR. STANLEY R. MAXEINER: Being Secretary of the Hennepin County Medical Society, Mr. Slater and I have thought along two or three different lines, one of which was that, when this subject was brought before this body they tried to settle it definitely; but we find this cannot be done in a hurry. There are several things to be considered; and, if we are opposed to this plan, we should consider what we have to offer in the way of a substitute. It seems to me, in conjunction with the resolution introduced by Dr. Tuohy, we should also formulate some definite reasons, definitely drawn by a committee, pointing out why we object to this proposed system, and what we would suggest as a substitute.

DR. TUOHY: In offering this resolution and in my preliminary remarks, I made it clear that the University ought to grow, and that is what I personally very strongly desire. There are only two ways by which it can grow,—either State aid must be abandoned, or money must be secured from private individuals. Being a state institution, and having grown so magnificently under its auspices, it ought to continue.

I am willing that some such statement as the following shall be included in the resolution, that we, members of the State Medical Association, hereby pledge our hearty support to the further development of the State University Medical School through the extension of hospital facilities along lines previously established and successfully carried out.

That extension is a logical one. The other alternative is a logical one, and I individually pledge my hearty support, as I have previously

said, to a movement of that kind. (Motion seconded.)

DR. FARR: I would like to speak briefly on this subject, but more particularly with reference to the amendment.

As I see this proposition, it is exactly like the medical-journal proposition; it is not a personal matter; it is a matter that concerns us all in a broad way.

I have been associated in a way with the State University for many years, and I surely cannot be accused of having anything but the interest of the University at heart. It is very much like recent legislation in Washington. It is a matter of expediency at this time to meet something. We have had a certain policy at the University which was changed at the time of reorganization, not so much in basic principle, but it was changed and changed a year later quite basically, and that has put the University in a hole, so to speak. They have not the funds with which to carry out the schemes as planned. Whether that is due to the fact that this State is unwilling to support the University or to the fact that those who had the matter in charge were not far-sighted enough to go at the thing a little more slowly and emphatically and logically and let it grow and make a radical change; or whether it is due to something else, it does not seem to me is important, but I believe this move is one of expediency, and, it seems to me, a discussion of the details of it should not take place here. It is a question of basic principle. Is this thing that the University proposes to do right now as an expedient going to be the thing for our children and grand-children? What is going to be its effect in the next twenty-five or fifty years? What effect will this proposition have upon future legislation in the state with regard to the appropriation of funds? One-half of the institution or a portion of it is supported by the State, and the other half is supported by private funds. This creates trouble in the University. What about the state outside of the University? What makes the sentiment of the state? The Medical School. Physicians, although they may not have much to say, exert their influence all over the state,—in the state legislature, and everywhere else. We have a great influence over everything that is medical, and, if the physicians do not believe this is a good basic principle to follow, what effect will it have on state legislation? The reason the University cannot get the extra support it needs is because they have not the support of the pro-

fession in the Northwest, and is this expedient which has been proposed going to make that better or worse?

DR. J. T. CHRISTISON: We are wasting time in discussing this question. While we are heartily in accord with Dr. Tuohy's motion, we all know that when the University decides on something, they will do it irrespective of what we or anybody else thinks.

DR. R. J. HILL: I am in perfect accord with what Dr. Christison has said. This is in line with the Mayo Foundation. We may exhaust all argument and protest, it will be done just the same. We are wasting time in discussing this matter except we shall put ourselves on record as being opposed to any such thing, but it will go through just the same.

DR. EARLE R. HARE: With reference to two points that have been raised, I will speak first of per-diem patients. The conclusion we draw there, as has already been said, is, that the University Hospital is the only place they will receive per-diem patients where they can be properly taken care of. There are many men quite as interested in the study of disease (I speak as a Faculty member) as the men in the Faculty, and have been for a number of years; and they are willing to devote their time, their energy, and their professional efficiency to the study and care of patients who can pay per-diem fees; and there are hospitals all about us that are perfectly willing to take them in on that basis. It is unnecessary to send them to the University Hospital in order that they may be taken care of on that basis.

In the second place, there seemed to have been established for a number of years a certain policy in the University, and it has worked out through the Out-Patient Department quite effectually. This policy was this: It was wrong for any man in the Out-Patient Department to receive pay patients who came to him through his position in the Out-Patient Department; therefore, that was very nicely taken care of by the promulgation of a rule which limited the number of patients that such individuals might take from that source. The limitation was complete. It absolutely prohibited any member in the Out-Patient Department from receiving patients in his private practice who could pay.

Now, I have been wondering, inasmuch as I have been under that limitation for a number of years, how basic principles change over night. These principles seem to have been changed.

There has apparently been a radical roundabout change in the attitude of the administration towards this question; and now it seems perfectly proper to add to the income of those who are in the Medical School by the taking of per-diem patients or patients who are able to pay, and the only change which I can see is that the University now has to furnish them hospital facilities and a place where they can do their work. Formerly, it was done in private hospitals. I want to be fair in my judgment towards this situation. There is a right and a wrong situation. If it was right a while ago to take pay patients, it is right now. If it was wrong a

while ago to add to the income of the clinical instructors, it is wrong now. As I stated a while ago at a meeting of the Hennepin County Medical Society, I plead for the righteousness and justness of this situation, and, if those who propose it are earnest and honest, those who oppose it must be likewise given credit for being earnest and honest in regard to whether or not it is right for the University to establish this principle of pay patients within the University.

The amended motion of Dr. Tuohy was then put and declared carried unanimously.

On motion of Dr. Scofield, the House of Delegates then adjourned *sine die*.

## PRESIDENT'S ADDRESS: MEDICAL PREPAREDNESS FOR NATIONAL DEFENSE

By J. WARREN LITTLE, M. D.

MINNEAPOLIS

*Members of the Minnesota State Medical Association:* I desire to thank you most heartily and most sincerely for the confidence you have placed in me by electing me your President. I recognize that the selection for the office is not based entirely upon achievements of the fortunate recipient, and that, owing to the size of the Association, now numbering fifteen hundred and sixty-five, comparatively few can be so honored. There are to be found no more efficient and intelligent workers in any state in the Union than in our own beloved Minnesota. Men of worldwide reputation, full of vigor and ambitious to increase medical efficiency, meet with us today anxiously considering how best they can serve in building up the ever-expanding profession of medicine.

There are many subjects connected with the activities of the Association that might properly be presented today, yet, on account of limited time, I have chosen to present for your consideration but one:

### MEDICAL PREPAREDNESS FOR NATIONAL DEFENSE

If we believe so thoroughly in medical preparedness, why not take an interest in National Preparedness and put forth our united efforts as a profession to bring about such a condition that we shall be able as a nation to protect ourselves at all times against invasion, as well as to protect the lives and property of our countrymen wherever they may be. We are not doing that

at this time, nor could we possibly do so were we opposed by a nation of the first class.

The importance of the medical branch of the army is acknowledged by all, but in the event of war how many of us would be valuable in the service? Through your courtesy, I am enabled to enforce upon you my opinions, if not my wishes.

It is natural to protect and cherish whatever is dear to us, although there may be a difference of opinion as to how it should be done. National military preparedness means that we have an armed force readily available, and of sufficient strength to destroy or drive from the country any invader; while lesser preparation means danger of defeat, and even though victorious, unnecessary loss of life and property. There is among us no thought of a war of conquest.

We must not forget that preparedness means more than a well-trained and thoroughly equipped army and navy; it means an individual preparedness of mind and heart that we may feel that, to have served our country well, we have done our bit to increase the efficiency, the happiness, and the prosperity of mankind.

Patrick Henry said, "I know of no way of judging the future but by the past."

The study of history compels me to believe that universal compulsory military service is the only equitable and efficient means of providing at all times the best service of which we are capable. Some one has said, "A wolf is never



frightened by the number of sheep in a flock he is about to attack."

A great number of untrained and unequipped men in an army only more certainly insures disaster, and, again, a wealthy country insufficiently protected invites national robbery.

There are many arguments in favor of universal service. All citizens receive equal protection from the government and should contribute alike for its protection and support, barring, of course, conditions that are provided for. There is no just reason why you should sacrifice your business while a rival remains at home, and profits by your absence because he is less patriotic.

Failure to prepare may mean defeat before a nation's resources, however great, can be utilized. Major General Wood has said, "No matter how righteous our cause may be or how considerate we may be of the rights of others, we must be prepared to defend our rights and to secure for ourselves just treatment. This cannot be secured by treaties alone; it can be secured only when our people are prepared promptly to meet force with force."

Undeveloped military resources are of no more value in the onset of a modern war than would be an undeveloped gold mine in Alaska during a panic in Wall Street.

The plan of the United States has been to have a small standing army, and depend on volunteers in time of war. This is a very faulty system, as has been proven over and over again.

Prussia learned her lesson at Jena, a town in Germany in the Grand Duchess of Saxe-Weimer, on October 14, 1806, when the Prussians under Prince Hohenlohe were defeated by the French under Napoleon. Napoleon then demanded that Prussia have a small standing army, but the effectiveness of this order was destroyed when national compulsory military training became a law.

Austria's lesson was received at König-Gratz, a town of Bohemia on the banks of the Elbe. The battle was fought on July 3, 1866, and the Prussians under Prince Frederick Charles defeated the Austrians under Benedek.

France's lesson was received in the Franco-German war when Napoleon III and his whole army surrendered to the Germans under King William the First, on September 2, 1870, at the battle of Sedan on the river Meuse on the frontier of Luxemburg; and again at Metz, in Alsace-Lorraine, when on October 28, 1870, 180,000 officers and men under Marshall Bazaine sur-

rendered, having been reduced to a state of famine.

Russia's lesson was received at Liao-Yang and Mukden in 1904.

Great Britain is just now receiving her reward for unpreparedness and a bad military system. It has taken her, with her great resources, two years to get under headway, and finally, all other means having failed, she was forced to resort to conscription, just as both North and South were forced to do in our Civil War.

When will the United States receive her lesson, or is she wise enough to accept the advice of her first President, who said, "In time of peace prepare for war" and, again, "The militia of this country must be considered as a palladium of our security and the first effectual resort in case of hostility."

It is essential, therefore, that the same system should pervade the whole, that the formation and discipline of the militia of the continent should be absolutely uniform, and that the same species of arms, accoutrements, and military apparatus should be introduced in every part of the United States.

France today has universal compulsory military service, and being a republic could not have it did not the people wish it. At the beginning of the recent war, France mobilized and put into battle the greater part of 2,000,000 men in a few days; the United States was able to place only 17,000 men in Cuba after two months' mobilization.

Our history, as our anatomy, needs constant reviewing. Captain Lincoln C. Andrews has said, "The military policy of the United States has been best expressed in its monetary motto, 'In God We Trust.'"

In no measure detracting from the luster of those patriotic leaders of the Revolution, whose wonderful patience and self-sacrifice held together a few constantly shifting thousands of so-called soldiers, until, by the aid of Jehovah, France, and the favorable sentiment in England herself, they won our independence, but, rather adding to the luster of their accomplishment in the face of such discouragement, let us realize the truth, that, instead of our patriotic fathers flocking to the standard, it was only with the greatest pains that Washington's pathetically small army was kept reunited at all; that desertions were wholesale, and discipline often practically nil; that bounties, greater and greater, had to be paid to get men to enlist; that short-term

enlistments kept the personnel constantly changing and the ranks made up of untrained soldiers, and not infrequently resulted on the very eve of battle in the disintegration of large parts of the army through expiration of their terms of enlistment; that, while nearly 400,000 enlisted men passed through the ranks, Washington never had at one time 30,000 effectives; and that in the end the decisive victory at Yorktown was made possible only by the timely presence of the French fleet.

In 1812 we brought to the colors for that war the astounding number of 527,000 men to oppose an English force of less than 17,000 men, and were beaten and humiliated at every turn. Fortunately for us England was in a death grapple with France.

Finally in our great Civil War we had to resort to conscription. The war was prolonged and more expensive than it need to have been, and now fifty years after the close of the war the Nation is paying in pensions annually the sum of \$170,000,000.

From all of the evidence can we not unite and use our influence to secure a real business-like system of preparedness, such as Switzerland has? This system is not an experiment; it has been tried for years and found to be both efficient and economical; it is an equitable system, and does not impose an unreasonable service upon any one. It will teach the young men of America what, I believe, they are most in need of,—discipline, obedience, and respect for their superiors.

A committee to consider National Medical Preparedness is now at work.

This committee is composed of the Presidents of the following Associations:

The American Medical Association.

The American Surgical Association.

The Congress of American Physicians and Surgeons.

The Clinical Congress of Surgeons of North America.

The American College of Surgeons.

The aim of this Committee is to co-operate in developing the civilian and reserve medical resources of the country to the highest point of efficiency. Sub-committees have been appointed in all the states and territories.

The Committee named to represent Minnesota is composed of the following:

Dr. Arthur Ayer Law, Minneapolis, Chairman.

Dr. Harry Ritchie, St. Paul.

Dr. W. H. Magie, Duluth.

Dr. H. M. Workman, Tracy.

Dr. Hugh F. McGaughey, Winona.

Dr. Thos. McDavitt, St. Paul.

Dr. E. S. Judd, Rochester.

Dr. W. L. Palmer, Albert Lea.

Dr. J. Warren Little, Minneapolis.

It is estimated that we shall need approximately two hundred physicians for every one million inhabitants, or five hundred in all for Minnesota.

An Executive Committee of ten, of which Dr. Wm. J. Mayo is Chairman, in a letter addressed to President Wilson in April, expressed the purpose for which this Committee of American Physicians tendered their services:

1. To establish, through the above-named medical organizations and their affiliations with local medical societies of the states and territories, an organization that would be in a position to make a comprehensive survey of the medical resources of the country.

2. To make a complete invoice of such resources available in peace and in the emergency of war. This invoice would include not only the names of men available for field or home duty who are trained in the specialties of medicine, surgery, and sanitation, but it would also include in minute detail for each community the equipment of the institutions with which these men are connected, such as hospital facilities, buildings available for hospital use, facilities for transporting wounded men, food supply and drug supply, on hand and available, lists of trained nurses and other persons essential for hospital work, etc.

3. To aid in the care of the sick and wounded and the elimination of preventable diseases.

President Wilson, in his reply, stated that the Secretaries of War and the Navy had directed the preparation of a plan accepting the services of the Committee.

The National Defense Act of June, 1916, increases the army to 175,000 in five years. This means the addition of 796 new medical officers in that time. At present there are only 429 commissioned medical officers in service.

The opportunities for young doctors of military aspirations never were so favorable. Entering the service as second lieutenant, the salary will be \$1,700 a year; as first lieutenant, \$2,000; as captain, \$2,400; as major, \$3,000; as lieutenant-colonel, \$3,500; as colonel, \$4,000; as brigadier-general, \$6,000; and as major general, \$8,000. The base pay is increased ten per cent

for every five years of service, up to fifty per cent. In addition, quarters, light, heat, and the advantages of the commissary are furnished.

In one year after June 3, 1916, the Medical Reserve Corps, as now constituted by law, will cease to exist, and will be replaced by the Officers' Reserve Corps, a much more comprehensive act and not limited to medical service. The idea is to secure for the army the most expert and useful men to be obtained for all branches of the service.

The new army bill provides for four classes of soldiers in the United States: first, the Regular Army; second, the National Guard; third, the Enlisted Reserve Corps, all of which shall exist in time of peace; and, fourth, the Volunteer Army, which shall be raised only in time of war.

The peace strength of the regular army is approximately 11,000 officers, not to exceed 175,000 combatant troops, and approximately 40,000 non-combatant troops, including the unassigned recruits. The National Guard will consist of about 17,000 officers and 440,000 men. The number of men who will join the enlisted Reserve Corps cannot be foretold. They are practically enlisted specialists for the technical departments of the army recruited in time of peace for use in time of war only, and are subject in time of peace to short periods of training yearly.

Volunteers can be called in time of war, at such time and in such numbers as Congress shall authorize. The bill is better and more comprehensive than any preceding one, but I do not think it compares favorably with the Swiss system.

The late Dr. S. Weir Mitchell, the great practitioner and teacher, and brilliant man of letters, who served in the Civil War, in a base hospital in Philadelphia with Dr. J. M. Da Costa and Dr. W. W. Keen, both of whom won world-wide fame as teachers and practitioners, has this to say concerning the non-recognition of the army surgeon:

"The great leaders in war have been promoted and universally honored. Countless statues commemorate in Washington and elsewhere the popular heroes. Statues of generals are in every town, some of them memorials of men it were wiser to forget, some of whom history will judge severely; every village has its statue to the private soldier; there is not a state or national monument to a surgeon. At Gettysburg every battery

site is marked with a recording tablet; every general who fell, Union or Confederate, is remembered in bronze or marble; but what of the surgeon who died? Nothing.

"It is a relief to know that I have of late induced the Gettysburg Commission to mark with a bronze shield, the site of every corps hospital with the names of the surgeons who served in each. Please to fully realize the fact that this will be absolutely the first National recognition of the physician in the war. Has any one ever heard of a medal of valor being given to a physician? Shall we be proud that the Republic asks of us, expects from us, every service, and has for us no honoring recognition in life and no memorial marble for those of us who died on the field of honor?"

I have quoted the above largely for the benefit of the young men who may join the colors. From this history you must likely receive your reward for service to your country in the satisfaction that you have done your duty and used your best effort to restore health to the sick and wounded, just in the same manner as in private practice you receive your greatest reward in the good work you do, rather than from the money you receive.

I will close with Dr. Mitchell's verse to the Goddess of Medicine:

Fair heritess of every human hope,  
Rich with the marvels of time's widening scope,  
However high may rise thy soaring wing,  
Whatever change thy fuller days may bring,  
Our ancient lesson will be ever new;  
That priceless lesson will be ever true;  
Time did not teach it; time will change it not;  
This, this shall last though all our lore's forgot,  
To give what none can measure, none can weigh,  
Simply to go where honor points the way;  
To face unquestioning the fever's breath,  
The hundred shadows of the vale of death;  
To bear Christ's message through the battle's  
rage.

The yellow plague, the leper's island cage,  
And with our noblest "well to understand  
The poor man's call as only God's command."  
Aye, under every century's changing sky.  
Shall the Greek master's triple signal fly—  
Faith, honor, duty—duty calmly done,  
That shouts no self-praise o'er a victory won;  
One bugle note our only battle call,  
One single watchword, Duty—That is all.



# THE JOURNAL-LANCET

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North Dakota and South Dakota State Medical Associations

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NOVEMBER 15, 1916

## STRIKING FEATURES OF THE TRANSACTIONS OF THE HOUSE OF DELEGATES OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Lest the length of the proceedings of the House of Delegates at the recent annual meeting of the Minnesota State Medical Association, published in full in this issue of THE JOURNAL-LANCET, deter some of our readers from a careful perusal of them, we call attention to their principal points.

An admirable necrological report called for a special vote of thanks to the chairman of the committee, Dr. F. P. Strathern, of St. Peter; and our honored dead of the year should be recalled by a careful reading of this report by every member of the Association.

A communication from the Minnesota State Pharmaceutical Association gave the information that the pharmacists of Minnesota are looking forward to the enactment of a law that will require a college education of the future pharmacist seeking a license in Minnesota.

The question of a medical journal for the Association was given dispassionate consideration, and was referred to a special committee of five members, who are to lay their report before the county

and district societies within six months, and then before the Association at its next meeting.

The proposed plan of enlarging the Medical School of the University, with per-diem and pay patients and full-time clinical teachers taking private patients, was thoroughly discussed, and the plan unanimously was disapproved.

The discussion of the medical defense feature of the Association deserves special and very careful consideration, as it is considered by many a vital part of the work of the Association. The cost of such defense last year was more than twice the amount paid by members for the defense feature.

The Council suggested an amendment that an x-ray plate of all fractures be required in case of an injury to a bone or joint, and that the Association would decline to defend an action for malpractice entered as a defense in a suit to collect a bill for services unless suit for the bill was begun before one year after the services were rendered. The first part of the proposed amendment was withdrawn, and the second part was passed.

These and other features of the transactions deserve a very careful reading and consideration, especially as some of them may come up again.

## A CORRECTION

In our issue of November 1, in the descriptive headings of the resolutions *passed* by the Minnesota State Medical Association and the Medical Alumni Association of the State University, the word "rejected" should have been "passed." The error was caused by telephoning the headings to the printer, who received the resolutions at a late hour and without headings. The proof-readers failed to catch the mistake.

## MISCELLANY

### MEMORIAL TO DR. EMIL H. BECKMAN

The faculty of the Medical School of the University of Minnesota desires to record its deep regret for the loss of Doctor Emil H. Beckman, associated with the school as an alumnus of distinction, a colleague in medical education, and a member of the staff of the Mayo Foundation for Medical Education and Research and of the faculty of the Graduate School of the University of Minnesota.

A devoted student of medicine, a medical edu-

cator whose clarity of judgment and superior technic had won for him an admiring clinic, an executive whose breadth of view and attention to detail had made him an effective agent in the organization of affairs, his worth and his work have been recognized, not only by his immediate fellows, but by the profession at large.

A man of simple manners, of earnest purpose, of faithful friendship, of sterling integrity, he, like the Israelite of old, may well be said to have been "a man without guile."

The city of Minneapolis owes him a debt of gratitude for his reformation of its City Hospital of years ago; the State, for his efficient services in the laboratories of the Board of Health; the University, for his co-operation in the development of higher medical education.

The Medical School has felt, again and again, the warmth of his interest in his Alma Mater.

To his family and to his associates at Rochester the members of the faculty tender their sympathy and the assurance of their appreciation of the abiding loss they suffer, a loss lightened only by the memory of a life of service which will also abide.

#### IMPORTANT INFORMATION AND A WARNING

There seems to be more or less confusion throughout Minnesota relative to the relationship between the Minnesota State Board of Health and the Minnesota Public Health Association. There is no relationship whatever between these two organizations. The Minnesota State Board of Health has *administrative* functions under the laws of the state. The Minnesota Public Health Association is a voluntary organization supported by the sale of Red Cross seals and by membership dues, and has no authority whatever in the administration of public health laws. There is no relationship whatever between these two organizations; and the State Board of Health wants all health officers in Minnesota distinctly to understand that the Minnesota Public Health Association has no official relation to such officers.

H. M. BRACKEN, M. D.,

Executive Officer of the Minnesota  
State Board of Health.

St. Paul, Minnesota, October 31, 1916.

## NEWS ITEMS

Dr. C. D. Kolset, of Brooten, has moved to Benson.

Dr. Harold Rees has moved from Benson to Grafton, N. D.

Dr. R. L. Laney, of Kelliher, has moved to Brown Valley.

Dr. F. N. Bjerken has left Lake City, and located in Red Wing.

Dr. N. O. Sandven has moved from Park River, N. D., to Willmar.

Dr. J. N. Johnson, of Petersburg, N. D., has located in Larimore, N. D.

Dr. A. M. Aanes, of Red Wing, has moved to Clearmont, Iowa, his former home.

Dr. J. A. Schultz has sold his practice at Albert Lea to Dr. A. I. Arneson, of Scarville, Iowa.

Dr. J. C. R. Charest, who formerly practiced in Thief River Falls, has located in Minot, N. D.

Dr. C. A. Manahan, of Brownsdale, has sold his practice to Dr. W. B. Grise, of Dayton, Ohio.

The Mounds Park Sanitarium at St. Paul has purchased property to be used as a nurses' home.

Sixty-four physicians are pursuing graduate medical courses at Rochester at the present time.

The St. Paul City and County Hospital has installed a branch of the St. Paul public library.

The Barnesville Hospital will be opened about December 1, and will have a capacity of ten beds.

Dr. H. J. Rock, who has practiced for sixteen years in Aberdeen, S. D., has moved to Sioux Falls, S. D.

Dr. G. W. Rightenour, a resident of Sheridan, Mont., for the last 37 years, died October 15 at the age of 77.

Dr. W. F. Wiese, of Bismarck, N. D., has become associated with Dr. G. A. Sarchet, of New England, N. D.

Dr. Earle R. Hare, of Minneapolis, is spending a couple of months in Boston, taking postgraduate work at Harvard.

Dr. Richmond Favour, of the Rosebud (S. D.) Indian Agency, has been transferred to the Red Lake (Minn.) Agency.

Dr. L. A. Pickering, of Aberdeen, S. D., died on November 3 of heart failure while hunting ducks on a lake near Aberdeen.

About twice as many medical students are registered in the University of North Dakota this year as were registered last year.

Dr. J. T. Dunn, a former partner of Dr. W. L. Palmer, of Albert Lea, died October 26 in Pasadena, Cal., where he had gone for his health.

The demand for visiting nurses in rural school districts of Minnesota is rapidly increasing, as is also the demand for community visiting nurses other than school nurses.

Dr. Leo L. Elliot, government physician at the Red Lake (Minn.) Indian Agency, was married last week to Miss Mary Head, of Bemidji. Dr. Elliot goes to Rosebud, S. D., upon transfer.

Minnesota has been allotted 15,000,000 Christmas seals by the American Red Cross Society. Last year Minnesota won the pennant for the largest number of seals sold by states of its class.

Dr. L. W. Feezer, of New York, has been appointed field secretary of the Minnesota Public Health Association. Dr. Feezer has had large experience in public health work in New York and Massachusetts.

Dr. Gilbert Seashore, of Minneapolis, was recently elected president of the Twin City Alumni Association of Gustavus Adolphus College, and Dr. H. A. Noreen, of St. Paul, was elected vice-president.

It is believed that over 100,000 churches in this country will observe "Tuberculosis Sunday" on either December 3 or 10, the two dates set aside for this purpose by the National Association for the Study and Prevention of Tuberculosis.

The Ramsey County Medical Society has protested against an "open staff" in the St. Paul City and County Hospital on the ground that it will largely diminish the usefulness of the hospital and result in dissatisfaction to the staff.

At the recent meeting of the American College of Surgeons in Philadelphia, a commission of five surgeons was appointed to visit South America to establish closer relations between the medical men of the two countries. Either Dr. W. J. or Dr. C. H. Mayo will be a member of the commission.

Dr. Emil H. Beckman, of Rochester, Minn., died on the 7th inst. of blood-poisoning at the age of 45. Dr. Beckman was born in Grundy Center, Iowa, and was a graduate of the Medical School of the University of Minnesota. He was one of the foremost surgeons of America, and was a highly respected man.

The Huron Hospital, Inc., of Huron, S. D., has purchased a large residence with beautiful grounds overlooking the James River Valley, which is to be converted into a hospital. Drs. L. N. Grosvenor, W. O. Leach, J. C. Shirley, E. B. Taylor, Benj. Thomas, T. F. Wood, and O. R. Wright comprise the staff.

The Clay-Becker and Cass County Societies held a joint meeting at Moorhead on November 2. The meeting was well attended and was a very successful one. The Clay-Becker Society elected the following officers: President, Dr. H. J. Thornby, of Barnesville; vice-president, Dr. J. W. Meighen, of Ulen; secretary-treasurer, Dr. F. W. Briggs, Moorhead.

Dr. H. M. Workman, of Tracy, was tendered a banquet by Dr. W. D. James and wife, of that city, to celebrate the honor conferred upon Dr. Workman in his election to the presidency of the State Medical Association. A number of addresses were made, but the most interesting and illuminating was given by Dr. Warner Workman on "What I Know About Dad."

The Camp Relare District Society met at Little Falls on Oct. 26, and had a program of four excellent papers by Drs. Kilbride, Zinbeck, Mesker, and Kerns. The Society voted that if a referendum vote were taken on the plan of extension under consideration by the University Medical School, the plan would be disapproved by the Society. The following officers were elected for the current year: President, Dr. M. H. Marken, Boyd; vice-president, Dr. G. R. Pease, Redwood Falls; secretary-treasurer, Dr. H. Kerns, Granite Falls.

The Southern Minnesota Association offers an unusually attractive program for its twentieth annual meeting, to be held in Mankato on Dec. 4 and 5. The following is the program: Monday evening, a banquet, with the president's address, by Dr. E. Starr Judd, Rochester; "The Graded Surgical Operation," by Dr. George W. Crile, Cleveland, Ohio; and "(a) Carcinoma of the Breast, and (b) Treatment of Hernia in Children," by Dr. Albert J. Ochsner, Chicago, Ill. On Tuesday the following papers will be read: "The Thyroid Gland in Its Relation to Infections," by Dr. A. E. Sohmer, Mankato; "The Use and Abuses of Anesthesia in the Practice of Obstetrics," by Dr. W. H. Condit, Minneapolis; "The Physical Examination and Special Clinical Findings in Diseases of Children," by Dr. R. N. Andrews, Mankato; "Splénomegaly and Diseases



Associated Therewith," by Drs. A. H. Sanford, Alexander Achibald and H. Z. Giffin; "Treatment of Stricture of the Urethra," by Dr. Franklin R. Wright, Minneapolis; "Pathological Terminology and Clinical Efficiency," by Dr. W. C. MacCarty, Rochester; "Indications and Technic for Tonsillectomy—Symposium," by Drs. F. C. Todd, Minneapolis, W. R. Murray, Minneapolis, and Justus Matthews, Rochester; "Treatment of the Psychasthenic," by Dr. W. A. Jones, Minneapolis; a paper by Dr. E. C. Rosenow, Rochester; "The Present Status of Obstetric Surgery," by Dr. T. F. Hammermeister, New Ulm.

## LICENSES TO PRACTICE IN MINNESOTA ISSUED OCTOBER 18, 1916

### BY EXAMINATION

Braafladt, Louis H.....Rush, 1916  
Eckfelt, Odd.....Rush, 1916  
Madden, John.....U. of Michigan, 1884  
McCann, Daniel F....P. & S. of Columbia, 1914  
Noreen, Harold A.....U. of Minnesota, 1916  
Shewbrooks, Daniel M....Johns Hopkins, 1915  
Slater, Harvey M.....Johns Hopkins, 1915  
Steiner, Irving W.....Rush, 1916

### BY RECIPROCITY

Alden, John F.....Marquette, 1916  
Anderson, Stewart H.....U. of Illinois, 1915  
Arneson, Arthur I.....U. of Iowa, 1915  
Hartwig, Gerhard F.....U. of Illinois, 1915  
Lundgren, Albert C.....Marquette, 1913  
McCreight, George.....Rush, 1915  
Slyfield, Forrest F.....Rush, 1911  
Spurbeck, Roy G.....Northwestern, 1911  
Stokes, John H.....U. of Michigan, 1912  
Van Gorden, Jesse L.....U. of Iowa, 1901  
Williams, Robert J.....Northwestern, 1901

### OFFICE ASSISTANT DESIRES POSITION

A fine stenographer, with experience in a physician's office and as nurse and laboratory assistant, desires position. Can give good references. Address 425, care of this office.

### OFFICE FOR RENT

I wish to rent my fully equipped office in an outlying district of Minneapolis. I have a down-town office, and would need the other but three nights a week. Rent cheap. Address 426, care of this office.

### PARTNERSHIP WANTED

I desire to form a partnership with physician and surgeon in city of 10,000 or over in Minnesota. I am twenty-eight years of age and have had two years successful practice. Can do eye, ear, nose, and throat work. Address 419, care of this office.

### ASSISTANTSHIP OR PARTNERSHIP WANTED

By graduate of a Class A school, age 34, married, no children. Five years surgical training. Full surgical equipment. Special training in laboratory work. Licensed in Minnesota. Address 423, care of this office.

### X-RAY OUTFIT FOR SALE

Because of a change of location I desire to sell my Scheidel-Western Special x-ray coil and high-frequency outfit; also a McIntosh Wall Plate and a Leucodescent Lamp. These may be seen in Minneapolis. Address 424, care of this office.

### OFFICE POSITION WANTED

A graduate nurse of three years' experience desires a position as office assistant or institutional work. Has had experience as head nurse in hospital, as anesthetist, and as laboratory assistant. Is willing to go out of city. Can give good references. Address 422, care of this office.

### LOCUM TENENCY WANTED

Beginning Jan. 15th, for any length of time, not to exceed six months, by a regular physician; thirty-one years old; 1915 graduate of A+ school. Will have completed a twelve-months' internship at a large county hospital Dec. 10th. Can give best of reference. Can speak French. Address 418, care of this office.

### POSITION WANTED BY SECRETARY-STENOGRAPHER

A refined, capable young woman, having had six years' experience in the office of a Minneapolis physician, desires to become permanently associated as stenographer-secretary with a physician in Minneapolis having a large practice. Initial salary desired, \$75. Address 427, care of this office.

### PART OF MINNEAPOLIS OFFICE FOR RENT

Wanted—a dentist or physician to share office on fourth floor of the Physicians & Surgeons' Building, Minneapolis. Rent, \$25, with share office-attendant and telephone. Reception-room is already furnished. Can refer business enough to make it an object for a dentist. Space arranged to suit tenant. Address 421, care of this office.

### PHYSICIAN WANTED.

A competent physician and surgeon is wanted to take charge of a sanitarium (incorporated) in a Central Minnesota town of 400, located in a rich farming community and a summer resort. One who is not afraid to work and wants to grow with the institution. German preferred. Address 420, care of this office.

### DOCTOR

Doctor: If you want practical postgraduate work during the fine season in the delightful city, write for particulars. Thirtieth annual session opens September 25, 1916, and closes June 9, 1917. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

[illegible]

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Fueral Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,633	1															
Akeley			0															
Appleton	1,184	1,221	1															
Belle Plaine	1,121	1,204	0															
Blwabik		1,690	2															2
Bovey		1,377	1															
Browns Valley	721	1,058	2												1			
Buffalo	1,040	1,227	1															
Caledonia	1,175	1,372	3														1	
Cass Lake	546	2,011	3															1
Chisholm		7,684	7	1											1			1
Coleraine		1,613	0															
Delano	967	1,031	1												1			
Farmington	733	1,024	2															1
Fosston	864	1,055	3															
Frazee	1,000	1,645	0															
Grand Rapids	1,428	2,239	0															
Hibbing	2,481	8,832	6	1										1	1		1	2
Jackson	1,756	1,907	3														1	
Janesville	1,254	1,173	1															
Kenyon	1,202	1,237	2															
Lake Crystal	1,215	1,038	0															
Litchfield	2,280	2,333	2															
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	1															
Milaca	1,204	1,102	1															
Mountain Lake	959	1,081	0															
Nashwauk		2,080	0															
North Mankato	939	1,279	1	1														
North St. Paul	1,110	1,404	1															
Osakis	917	1,013	2															
Park Rapids	1,313	1,850	1															
Pelican Rapids	1,033	1,019	1															
Perham	1,182	1,376	5														1	1
Pine City	993	1,258	1															
Plainview	1,038	1,175	1															
Preston	1,278	1,193	0															
Princeton	1,319	1,555	6															1
St. Louis Park	1,325	1,743	0															
Sandstone	1,189	1,818	1	1														
Sauk Rapids	1,391	1,745	3	1							1							
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	1														1	
Spring Valley	1,770	1,817	1															
Wadena	1,520	1,820	3															1
Wells	2,017	1,755	1															
West Minneapolis	2,250	3,022	0															
Wheaton	1,132	1,300	1															
White Bear Lake	1,288	1,505	0															
Windom	1,944	1,749	3				1											2
Winnebago City	1,816	2,555	0															
Zumbrota	1,119	1,138	1															
STATE INSTITUTIONS																		
Anoka, Asylum			1	1														
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			5	1														
Fergus Falls, Hospital for Insane			4															
Hastings, Asylum			2	1														
Minneapolis, Soldiers' Home			5															
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			13		1													
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			12	1													1	
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			664	60	5	13	1	3	0	0	12	16	2	2	26	61	1	61
Total for state			1699	138	29	35	7	6	0	0	20	35	2	16	114	162	1	152

\*No report received. REGISTRAR not doing his duty.

143 stillbirths not included in above totals.



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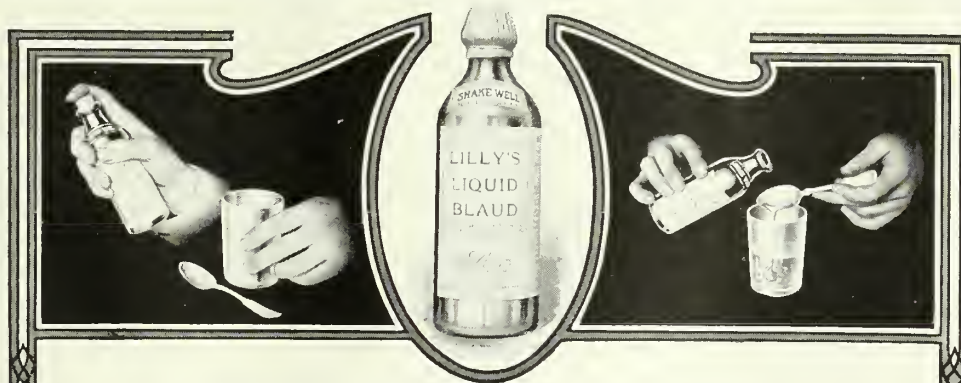
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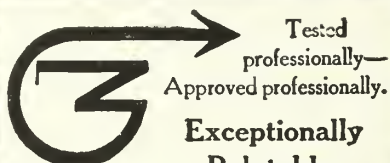
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### MEDICAL DEFENSE

Every medical man who reads the discussion on medical defense which took place at two sessions of the House of Delegates at the recent meeting of the Minnesota State Medical Association (the discussion appears in this issue of *THE JOURNAL-LANCET*) will take notice that it is worth while to pause and think.

The rapid increase in the number of malpractice suits brought against physicians and surgeons is alarming; and the *only* remedy against the danger is co-operation and insurance. If the State Association insurance, in Minnesota or elsewhere, is not deemed sufficient, the private corporation insurance should be obtained, and that *at once*. We heartily advise our readers to correspond with the Medical Protective Company of Ft. Wayne, Ind., for information upon the subject, which will be cheerfully furnished.

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### CALCIUM IODIZED IN THE TREATMENT OF CROUP

Calcium Iodized or Calcidin (Calx iodata) and its remarkable and almost specific virtues in the treatment of true croup were discovered some years ago, but, as it was then erroneously called "iodide of lime" or "brown iodide of lime," both of which designations are incorrect, little attention was paid to it. Owing to its incongruous terminology, it was left in its empiricism and even the few who had learned to rely upon it did not attempt to explain the rationale of its action.

Although Calcidin is applicable in all conditions in which the alternative action of iodine is desired, its principal effects are manifested in true croup and in whooping cough, and it is in these conditions that it has been the means of saving many a child-life that would have been lost without the timely and free administration of this valuable remedy. One must have witnessed and experienced the prompt and lasting relief that follows upon its application, in croup, to become convinced of the importance of Calcidin. Many an anxious father, scores, nay hundreds of despairing mothers have expressed their astonishment and their gratitude after they had witnessed the life-saving power of the little brown tablets. Calcidin is made and marketed by The Abbott Laboratories, Chicago, Illinois. Write for booklet on the subject.

### PROTECTION AGAINST SUBSTITUTION

The extensive substitution and adulteration of aspirin in powder and especially in tablets have impelled the manufacturer of this preparation to introduce "Bayer Tablets of Aspirin" (5 grs.), marked with the "Bayer Cross" as a protection against spurious imitations.

For many years aspirin was supplied in bulk to various reputable pharmaceutical concerns which made it into tablets sold by them under their firm names. Unfortunately, many unscrupulous persons, encouraged by the popularity of the drug, engaged in the manufacture and sale of fraudulent tablets which were largely bought by mercenary druggists, to whom profit signified more than reliability. Within the past year or two substitution and adulteration of aspirin on a large scale have been brought to light by the Bureau of Chemistry



of the United States Government and the Health Boards of various large cities. Examination of specimens of some of the products seized by the United States authorities showed them to consist of calcium phosphate and starch, cream of tartar and citric acid with some alum, or milk sugar, starch and calcium acid phosphate. Still other tablets that have been analyzed contained only a small fraction of the specified dose of aspirin, the rest being composed of inert material. For this reason no physician could be sure of the genuineness of aspirin tablets.

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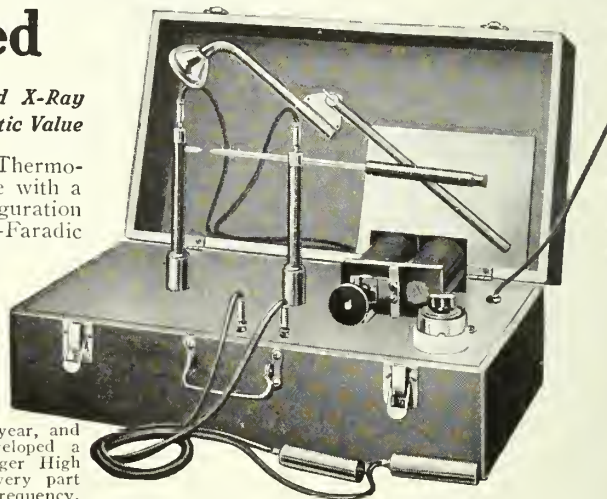
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## SOME RELATIONS BETWEEN EMOTIONS AND GLANDS OF INTERNAL SECRETION\*

BY W. B. CANNON, M. D.

Professor of Physiology, Harvard Medical School

BOSTON, MASSACHUSETTS

During the past five years a series of investigations has been carried on in the Harvard Physiological Laboratory with the object of securing further insight into bodily changes accompanying pain and major emotions. This work was the outgrowth of an interest in the inhibitory effect of pain and emotional excitement on digestive processes. The disturbances of digestion attending these affective states may considerably outlast the period of obvious excitement. What may be the occasion for the continuance of emotional disturbance in the body so long after the emotion-producing object has disappeared?

A suggestion that seemed reasonable was that the state of excitation was continued by secretion of the adrenal glands. These small bodies pour into the blood-stream a substance (adrenin, adrenalin, epinephrin), which exerts on structures innervated by the sympathetic nerves the same effects as are produced by impulses passing along those nerves. Thus the injection of adrenin will cause dilatation of the pupil, erection of hairs, inhibition of the movements of the alimentary canal, and other well-known consequences of sympathetic stimulation. But these glands are themselves stimulated by nerve impulses passing out by sympathetic pathways. It might be, therefore, that the bodily changes accompanying emotional excitement are produced initially by nerve impulses, that these impulses also rouse secretion of the adrenal glands, and that this secretion cir-

culating in the blood continues by chemical influence changes nervously initiated.

By using as an indicator a strip of intestinal muscle, sensitive to adrenin in dilutions 1:20,000,000 parts, Dr. de la Paz and I were able to show that when a dog barks at a cat, and the cat reacts by signs of terror or by a raging counter-attack, the cat's blood, taken near the opening of the adrenal veins, contains an increased adrenal secretion. Furthermore, Hoskins and I found that stimulation in an anesthetized animal of afferent nerves which, if stimulated in the conscious animal, would cause pain, likewise evoke an increased secretion from the adrenal glands. Pain, therefore, and such major emotions as fear and rage are accompanied by the discharge of a substance which can cause further excitation of organs innervated by the sympathetic system.

Certain remarkable effects of injecting adrenin have been known for many years. For example, it will cause liberation of sugar from the liver into the blood to such an extent that the sugar may appear in the urine (glycosuria). It will drive the blood from the abdominal viscera into the heart, lungs, central nervous system, and the limbs. It seems to act as an antidote to muscular fatigue; and it renders more rapid the coagulation of blood. The question at once arose after our first observations, Does the adrenal secretion poured out in pain and emotional excitement likewise produce these effects? Our later researches were concerned with answers to this question.

Emotional excitement and "painful" stimulation were proved to be accompanied by glycosuria.

\*Oration in Medicine, delivered at the forty-eighth annual meeting of the Minnesota State Medical Association, at Minneapolis, October 12 and 13, 1916.



If a caged cat is frightened, or made angry by a barking dog, it is likely to be glycosuric. Students after a hard examination, and football players after a thrilling contest, also have, in many instances, glycosuria (experiments conducted with Messrs. Shohl and Wright). The mere handling of a rabbit preparatory to an operation may nearly triple the sugar content of its blood.

If a muscle is fatigued, the threshold of irritability rises. It may rise as much as 600 per cent, but the average increase is approximately 200 per cent (observations by Gruber). If the fatigued muscle is allowed to rest, the former irritability is gradually regained, though two hours may pass before the recovery is complete. If a small dose of adrenalin is injected intravenously, or the adrenal glands are stimulated to secrete, we have found that the former irritability of the fatigued muscle may be recovered within three minutes. In this way, as Dr. Nice and I demonstrated, adrenal secretion may largely restore efficiency after fatigue.

Fear and anger, as well as worry and distress, are attended, as already stated, by cessation of the contractions of the stomach and intestines. These mental states also reduce, or temporarily abolish, the secretion of gastric juice. Adrenin injected into the body has the same effect. Besides checking the functions of the alimentary canal, adrenin drives out the blood which, during digestive activity, floods the abdominal viscera. This blood flows all the more rapidly and abundantly through the heart, the lungs, the central nervous system, and the limbs.

If adrenin is injected in very minute amounts into the blood, the time which intervenes between removal of the blood from the vessels and its clotting is greatly reduced. The same hastening of coagulation is observed if splanchnic impulses are excited, or an afferent nerve (for example, sciatic) is stimulated in a decerebrate animal, or if the animal is roused to fear or anger. The clotting time which, by the method used, was usually four or five minutes, was, in some instances, reduced to half a minute (experiments conducted with Drs. Gray and Mendehall).

These profound effects of pain and fear and rage are not in the slightest degree directly subject to voluntary action. They are rather of the nature of reflexes, for they appear promptly, and result from impulses which traverse pathways already prepared in the nervous organization of the individual. Since the effects are reflex in

character, and since reflexes are responses commonly useful to the body, it is pertinent to enquire regarding the utility of the changes above described.

The clue which gives these responses significance is found in considering the conditions which would accompany fear or great anger or pain. McDougall has pointed out the relations between these affective states and certain instincts. Thus fear is associated with the instinct to run, anger with the instinct to fight. The emotions in wild life would be roused in the presence of prey or the enemy,—a situation that would not unnaturally involve both the pursuer and the pursued in a desperate run or a fight. In case of combat pain would add to the stimulus of the emotion, and thus there might ensue a supreme and prolonged struggle.

Under such circumstances the liberated sugar would be serviceable for the laboring muscles, for it is known to be the elective source of muscular energy. The adrenal secretion, by abolishing the effects of fatigue, would place the muscles unqualifiedly at the disposal of the nervous system. The shifting of the blood from the less insistent viscera of the abdomen to the organs of utmost value in critical physical struggle,—the heart, lungs, limbs, and nervous system,—would be of the greatest service in assuring efficient action of these organs. And if in the combat the vessels are injured, prompt clotting of the blood might help to prevent dangerous bleeding.

The emotional reactions above described may each be interpreted, therefore, as making the organism more efficient in the struggle which fear or rage or pain may involve. And that organism which, with the aid of adrenal secretion, best mobilizes its sugar, lessens its muscular fatigue, sends its blood to the vitally important organs, and provides against serious hemorrhage, will stand the best chance of surviving in the struggle for existence.

The study of the conditions of activity in other ductless glands than the adrenal is difficult because recognition of the secretion in the blood is uncertain or impossible. It has long been known that physiological activity is accompanied by the development of an electrical difference, which may be manifested by connecting an active part with an inactive part through a delicate galvanometer. It seemed possible that by the application of this method important information might be obtained as to the conditions of activity of other of the ductless glands. This work has been



carried on thus far through the co-operation of McKeen Cattell.

The method was first justified by applying it to the submaxillary gland, which has an external secretion. Because an electrical change accompanies the secretion of saliva, even though the blood supply is shut off from the gland or the flow through the duct is stopped, and because the change is absent when secretion is absent, although each of the conditions attendant on secretion (such as contraction of blood-vessels, relaxation of blood-vessels, faster flow of blood, slower flow of blood) may severally be induced, the conclusion is drawn that the electrical change is a manifestation solely of the process of secretion.

The direction of this electrical current of action developed by the submaxillary gland may be reversed, although the physiological responses to stimulation remain as usual. Reversal is not, therefore, a certain sign of a reversed physiological process in the gland.

When the action current indicates a maximal activity of the submaxillary gland excited by stimulating the sympathetic nerve in the neck (cat), the electrical response can be augmented by stimulating the chorda tympani nerve, and *vice versa*; sympathetic impulses are ineffective during the height of an effect produced by injected adrenin, and chorda tympani impulses cause no increase of the action current, while pilocarpine is strongly operative.

The method thus justified on the submaxillary gland has been applied to the thyroid. Histologists have described nerve fibers leading to the cells of this gland, and anatomists have reported that the fibers going to the thyroid gland arise in the cervical sympathetic ganglia. Previous investigators have shown that severance of its cervical sympathetic nerves causes atrophy of the thyroid, and stimulation of these nerves causes a diminished iodine content of the gland. Severance of the vagus nerve supply has no effect.

If the thyroid gland and neighboring indifferent tissue are connected through a galvanometer, stimulation of the sympathetic strand high in the thorax evokes an action current after a latent period varying usually between five and seven seconds. This effect persists after the superior and the recurrent laryngeal nerves are severed. Experiments have shown that the nerve impulses pass out through both the superior and inferior cervical ganglia.

Stimulation of the main trunk of the vagus nerve in a curarized animal, or injection of pilocarpine, which excites vagus endings, has no effect in producing an action current in the thyroid gland.

The influence of sympathetic impulses is not indirect through local anemia of the gland, for, when the blood supply is wholly stopped by clamping of the blood-vessels for a period equal to that of sympathetic stimulation, no noteworthy electrical change is produced.

The conclusion is drawn, therefore, that the nerves distributed to the thyroid cells belong to the sympathetic and not the vagus supply, and that their effects are not indirect through alterations of blood-flow, indeed that they are true secretory nerves.

As already stated, the internal secretion of the adrenal gland has the same effect in the body as sympathetic nerve impulses. Injection of a small dose of adrenin, 0.1 to 0.2 c.c. (1:100,000), evokes a marked action current in the thyroid gland. Also, stimulation of the nerve to the adrenal gland so as to cause its secretion to be poured into the blood-stream, will evoke a characteristic electrical change in the thyroid. This electrical change does not occur if the return of blood from the abdomen is prevented, but takes place promptly when the pent blood is released; furthermore, it fails to appear after stimulating these nerves if the adrenal glands have been previously removed. There is thus definitely established an influence of adrenal secretion on thyroid activity.

Most of these observations on the electrical activity of the thyroid gland have been confirmed, in the Harvard laboratory, by Dr. R. L. Levy, who made use of the fact that iodthyroglobulin caused an increased efficacy of adrenalin in raising blood-pressure. He found that stimulation of the cervical sympathetic would increase the efficacy of adrenalin, injected in uniform doses, by as much as 300 per cent. This result was not obtained if the thyroid gland had previously been removed.

The earlier studies showed that the adrenal glands are roused to special activity in times of emotional stress. The thyroid gland is subject to that division of the nervous system which is brought into action in emotional excitement and which causes adrenal secretion. It is probable, therefore, that the thyroid, like the adrenal, has, normally, functions which are performed in times of critical emergency. It may be that such an

emergency function is an exaggerated form of the routine activity of the gland.

Our interest in the bodily changes during or following emotional excitement led us to inquire further concerning the nature of certain diseases often reported as having emotional origin. We proceeded on the theory that repeated emotional experiences might lower a naturally high neurone threshold and thus result in frequent stimulation of parts which, normally, are only occasionally roused to special activity. To test the effect of overstimulation Dr. C. A. L. Binger and I fused in the cat the anterior root of the right phrenic nerve with the right cervical sympathetic cord. Thus, after regeneration had occurred, there was delivered to neurones in the superior cervical ganglion a volley of impulses every time the animal breathed. The operations were performed early in May, 1914. In October four of six animals were still alive. All had peculiar symptoms. There was marked tachycardia—the average heart-rate in 36 observations on normal cats was 165, in 30 observations on these animals it was 222. Though fed like normal animals they had loose movements of the bowels. They suffered from falling of the hair from the neck and back, and they acted as if afflicted with pruritus of the head and toes. They were unusually excitable, as indicated by rushing away when taken in hand or petted. Dr. Reginald Fitz has studied the basal metabolism, and found that the average heat-loss per square meter of body surface per

hour in normal adult cats is 31 calories; in two of the experimental animals it rose as high as 56 calories, and in one (in all ways the most profoundly altered animal) it rose to 72 calories,—an increase over the normal of more than 130 per cent. This animal died after very rapid loss of weight. At autopsy the adrenal glands were found nearly three times the average size. In dim light the pupil in these animals was larger on the operated side, and in one of them exophthalmos and respiratory hippus had developed on that side. These symptoms are, in the main, characteristic of exophthalmic goiter, as seen in man. From one animal, in which the metabolism rose from 25 calories per square meter per hour to 46 after the nerve-fusion, the thyroid gland was removed. In two weeks the metabolism had dropped steadily to 35 calories. (The observations on these animals are preliminary to a more extensive study of the subject.)

It seems not improbable that the tachycardia that follows shock or great emotional experience and that appears more readily thereafter, and emotional dyspepsia and possibly also the diabetes reported as having emotional origin, may be reasonably accounted for as due to the lowering of thresholds in the sympathetic supply to the organs that are involved in these diseases, and that consequently they become overstimulated. Much more work needs to be done, however, before this suggestion can be regarded as anything more than a direction for further effort.

## LARGE QUANTITIES OF MILK IN THE TREATMENT OF DISEASE\*

By J. E. CREWE, M. D.

ROCHESTER, MINNESOTA

The treatment of disease by the exclusive use of milk, with practically no other food or medication, while not new, is, I believe, unusual, at least in this country. Ordinarily, when the milk treatment is prescribed, the daily quantity seldom exceeds three or four quarts.

Theoretically, considering its important elements,—sugar, salts, albumin, water, and vitamins,—milk should be ideal in the treatment of disease. As a food it is the most nearly perfect of any substance. It contains all the elements necessary for the growth of tissue and the maintenance of the body. Chemically it resembles

blood; and it is blood before it is milk. Osler speaks of it as being “nothing more or less than white blood.” Pavlov states, “There are properties of milk which secure for it an exceptional position. Milk, when compared with other foods in nitrogen equivalents, requires the weakest gastric juice and smallest quantities of pancreatic fluid. Consequently the secretory activity necessary for its assimilation is much less than for any other food. When milk is introduced mechanically into the stomach of animals, it causes a secretion both from the stomach glands and from the pancreas; consequently it appears to be an independent chemical excitant of the digestive canal, and in this action there is no essential dif-

\*Read at Mayo Clinic Staff Meeting, November 15, 1916.

ference whether the milk be introduced directly into the stomach or be given to the animal to lap. Milk excites, not only a really effective, but also a very economic, secretion, and the appetite is made to stimulate this secretion into a more active or abundant flow. The price which the organism pays in digestive work for the nitrogen of milk is much less than for any other food."

Milk makes more blood, and better blood, faster than any other substance; moreover, it is an excellent diuretic, and large quantities are eliminated by the kidneys without irritation, as is shown by the remarkable and rapid improvement of patients with inflammatory renal disease when placed on a milk diet. The hot baths prescribed result in profuse diaphoresis.

I think we can say that, speaking broadly, most diseases are due to poisoning from pathologic bacteria, from faulty elimination of the toxins generated in the body tissues, or from defective blood or defective circulation resulting in malnutrition of certain tissues or parts of the body. Obviously, then, to cure disease we should seek to improve elimination, to make better blood and more blood, to feed the tissues, to destroy the invading bacteria, to quickly remove bacterial and other toxic products, and to build up the body resistance. It is doubtful if there is any drug or group of drugs that will do this satisfactorily and quickly.

About three to three and one-half quarts of milk daily will sustain the average adult indefinitely under ordinary circumstances. If the patient can be made to assimilate from three to five quarts more, combined with complete rest and baths, we have a wide margin to go toward correcting the conditions causing disease, for reasons mentioned.

There are some difficulties in the way of feeding patients from six to eight quarts of milk a day; but, while we have unpleasant complications, we are able to overcome these difficulties in nearly every instance. There should be no iron-clad rules; discretion must be used. As a general thing we begin the treatment by giving the patient large quantities of water and oranges, or orange juice, without other food, for one or two days. Following this the patient is confined strictly to bed, but is allowed to walk to the bathroom when necessary, unless this is contra-indicated. In most instances the daily feeding begins with three or four quarts of milk, given half-hourly, thirty-two times a day. We begin at 6 A. M. and continue half-hourly feedings until 9:30 P. M. A daily enema of soapy water or salt

solution is important, because patients to whom it is not given frequently have gas distention and nausea, and develop an aversion to the milk. In addition to the milk the patients are allowed a dish of prunes or orange juice daily. No other food or water is given. We plan to increase the amount of milk given one quart every other day until we have reached the amount the patient can take, which in most cases is from six to eight quarts. I have had one patient who drank twelve quarts of sweet milk and three quarts of buttermilk a day for two weeks, during which time he gained twenty pounds. I have had patients gain twenty pounds in two weeks also on eight quarts a day. We use Guernsey or Holstein milk according to the case, and sometimes give part buttermilk. I am convinced that, to obtain the best results, whole raw milk must be given in large amounts combined with complete rest in bed and hot baths. It is a curious fact that while thin people gain rapidly in weight, stout people gain very little, though they seem to improve equally well.

Unless contra-indicated each patient is given a hot bath daily, lasting from ten minutes to three-fourths of an hour, and then wrapped in a blanket to cause perspiration.

During the past four years I have treated 136 cases by this method, and I have not included in this list a large number of patients to whom I have given large quantities of milk combined with other treatment. These cases may be divided roughly into the following groups:

Tuberculosis .....	18 cases
Arteriosclerosis .....	26 cases
Chronic rheumatism .....	8 cases
Chronic nephritis .....	8 cases
Gastric ulcer .....	4 cases
Diseases of the nervous system...	21 cases
Unclassified .....	51 cases

The unclassified group includes a large variety of cases, but most of them were those of patients who were recorded as being "run down," anemic, and ill-nourished,—not well, but without definite lesions. Some of these were people who were tired, under weight, needed building up, etc. Included in this list are two cases of prostatic disease, several cases of chronic and obstinate constipation, and two cases of cancer. Perhaps the best results are seen in tuberculosis.

Most of the patients were in advanced stages. One patient not included in the list, who was in the very last stages of prolonged illness, tried to take the treatment, but discontinued it after a



few days and soon died. I am willing to put this case in the list, but it is obviously unfair, for the patient's condition was absolutely hopeless and the treatment was attempted only to please her friends.

Two cases in the list were acute, and both patients died in less than two months from the time of their first illness. It is interesting to note, however, that they gained in weight and seemed to improve as long as they took large quantities of milk, but rapidly failed when they became unable to take much milk. Another patient, one of whose lungs became completely consolidated shortly after the onset of the disease, is still alive, eight months later, but unimproved, although he has retained his body-weight and color, and has been remarkably free from the usual discomfort of advanced stages. The remaining patients, so far as I know, are apparently well.

Considering that these patients were under treatment for periods of only four to eight weeks, I think the improvement very remarkable. For the sake of brevity I will describe only one case in which the improvement was typical of most of the others, although this was one of the most severe infections. I do not say that this patient is cured, and I have not examined him in several months, but he is working and says he feels well. A Röntgen-ray picture of this patient showed a very extensive infection. At the time treatment was begun his temperature was  $102^{\circ}$  and sometimes higher. Ten days later he had very little cough and no fever, and in six weeks gained twenty-six pounds. Treatment was begun February 4, 1916, and he has gained thirty pounds and does not cough. In one severe case the treatment was given for only four weeks,—nearly four years ago,—and there has been no trouble since. Two and one-half years ago I treated at the same time three tuberculous members of a family of nine children, five of whom had died of tuberculosis. One of these had a most severe pleurisy at the time treatment was begun and was seven months pregnant. She was also extremely emaciated from pernicious vomiting of pregnancy. In the beginning she was able to take milk only in very small quantities, but soon gained rapidly. She gave birth to a normal child at term, and has had another child since. Both children are healthy, and the mother is in better health than she had ever been before. The other sister has had no trouble since and was married last spring. Tubercle bacilli were demonstrated in both these cases. At the beginning of treat-

ment the brother weighed 174 pounds. His normal weight was 204 pounds. Six weeks after beginning treatment he weighed 209 pounds. None of these patients have shown any symptoms of the disease since, and have retained or increased their weight. Incipient cases require only four weeks' treatment, and the gain in weight of nearly all these patients has been from sixteen to twenty-six pounds in from four to eight weeks.

The results in arteriosclerosis, I believe, are equally interesting. Of the twenty-six patients treated, one is dead, but he lived two years after his physicians had given him only three or four months to live. He was a Christian Scientist and refused to take the treatment a second time. One other patient, aged 72 years, had had three light apoplectic strokes, and had a blood-pressure of 245. In spite of the fact that he over-eats he is alive and quite active after nearly two years, and has undergone an operation for hernia since taking treatment. He tells me also that an old prostatic trouble is much improved.

Another case was that of a man aged 50, who was admitted for treatment February 17, 1916, with a systolic blood-pressure of 270 and a diastolic of 140. He took the treatment for four weeks, gaining seventeen pounds during that time. When discharged his systolic blood-pressure was 200, diastolic 110. In a letter received a few days ago he stated that he was steadily improving, and had ridden in an automobile eighty miles in one day without fatigue.

One patient, a female, single, aged 52 years, was treated more than four years ago. Her blood-pressure was 245. She could not sleep except in the erect position, and had terrific headaches constantly. She could not see well, and could not walk half a block. Since that time she has been running a boarding-house, and has adopted two children. Her blood-pressure taken this summer was 160.

Almost none of these patients took the treatment for more than four weeks, but most of them continue to drink from one to three quarts of milk a day.

Of the eight cases of chronic rheumatism three were cases of arthritis deformans. One of these patients was greatly improved, and one considerably improved. One patient whose case was absolutely hopeless gained in weight, was relieved of pain, and was sufficiently improved to sit up in a chair after nearly two years in bed. Those with ordinary rheumatism improve greatly

on four weeks' treatment. Some of these patients had bad heart lesions.

The results in chronic nephritis are remarkable, the patients gaining rapidly in weight, and the albuminuria frequently disappearing in ten days. One patient has had no trouble in nearly four years. While it is generally believed that large quantities of fluid should not be given in heart and kidney conditions, my experience has been quite the contrary, at least as far as giving large quantities of milk is concerned.

Under diseases of the nervous system I have included neurasthenia, neuritis, facial neuralgia, and sciatica. All of the patients improved very satisfactorily with the exception of one woman, who could not walk alone. The condition of the latter had never been diagnosed, and while there was but little improvement in her ability to walk, her general health improved and she gained in weight from ninety-one to one hundred and five and one-fourth pounds, or fourteen and one-fourth pounds in four weeks.

Among the cases of chronic constipation, the most obstinate case I have ever seen was that of a patient who has not taken any cathartic since treatment in March of this year. Nearly every patient having chronic constipation has been greatly improved. Ordinary run-down patients always improved.

Three patients were unable to continue the treatment on account of diarrhea, which complication, although rare, seems difficult to overcome. One of these had a chronic diarrhea when she entered.

Many patients will be troubled with gas, and a few with nausea and vomiting. We pay no attention to this, but keep on giving the full amount of milk and even increasing the amount. It is surprising how these troubles can be overcome by not "babying" the stomach; however,

it requires perseverance and faith on the part of the patient and attendant. A few will not try to overcome the difficulties, and three of our patients left the sanitarium because the treatment was not agreeable.

For success in this treatment the measures which I have suggested must be carried out strictly. Failure to persist will mean failure to secure results.

In summarizing, I may say that the range of diseases amenable to the milk treatment is quite broad, and one of the most important features is the short time required for results, usually from four to eight weeks. The chief advantage is the remarkably short time in which serious diseases can be benefited and the fact that they continue to improve. The name of the treatment is not impressive, but the results are most gratifying in many conditions not benefited by other means. My observations have led me to believe that there is something more to this treatment than a mere building up and washing of the tissues. I am positively convinced that raw whole milk contains some substances, which, when given in large quantities, exert a physiologic or chemical action, probably through the ductless glands, on metabolism that is extremely important; and I venture to say that the discovery of what these substances are, and of easier methods of utilizing the treatment, will mark one of the most important advances of modern medicine. A further reason for this belief, besides those already stated, is the observation following a milk diet, of marked and rapid changes in certain pathologic tissues. I do not believe that pasteurized milk will give these results, because, while many constituents are unchanged, certain vitamins or bodies are destroyed, and thus are lost some of the most essential elements required by the tissues.

## UNRECOGNIZED FRACTURES OF THE WRIST AND ANKLE JOINTS\*

By V. J. LaRose, M. D.

BISMARCK, NORTH DAKOTA

The wrist and ankle, owing to their anatomical situation, are constantly exposed to direct violence in our innumerable occupations, and very often to indirect trauma when an individual stumbles or falls; injury to these joints is therefore of frequent occurrence. Such injuries are

too often looked upon as merely "sprains," chiefly because the symptoms may be very mild during the first few days. The physician, on finding no cardinal sign of fracture after a hasty examination, is apt to dismiss the patient with a diagnosis of "sprain," and a bottle of liniment for a cure.

There is a legal aspect to these cases which

\*Read at the 29th annual meeting of the North Dakota State Medical Association at Devils Lake, May 10 and 11, 1916.



should always be borne in mind: a fracture undiagnosed for a few weeks and in the meanwhile treated as "only a sprain" is an excellent basis of a malpractice suit.

The following is a series of some twenty cases of injury to the wrist and ankle selected from our Bismarck Hospital records for the past two years. The patients came to us with a history of sprain and of having received treatment for sprain. Complaint at the time of consultation was of severe pain or impaired function, due to soreness, stiffness, and swelling, especially after using the affected joint. At the time of the in-

sprains must not confuse them with sprain fracture, which has been defined<sup>1</sup> as "a condition resulting from increase in tension on tendon or ligament, or from direct violence at the seat of tendinous or ligamentous attachment to bone, and is a separation of all or part of that bone, to which tendon or ligament is attached."

A sprain of the wrist is rare. There very often exists in so-called sprains a definite anatomical lesion of bone. The ankle, like the wrist, may suffer traumatic injury in a number of various ways; and among such injuries are fractures which are very difficult to diagnose.



Fig. 1.



Fig. 2.

jury there was no positive sign of fracture, such as deformity or crepitus; and the patients had all been encouraged to exercise and use the injured joint. On attempting to follow this advice, the injured joint became swollen and painful, with more or less impairment of function, and continued use aggravated these symptoms. Changes in the structure of the joint, such as chronic arthritis and atrophy, could be demonstrated in some of the more chronic cases.

The time between the receipt of the injury and the consultation varied from two weeks to six years, with the exception of three cases, which three cases were referred by physicians on account of severe pain and swelling within the first few days after the injury.

The fact that these injuries were treated as

#### REPORT OF CASES

*Impacted Fracture of the Distal End of the Radius with Separation of the Ulnar Tip.* (Two cases.)—Both cases occurred in elderly women, and both were due to falls on the palm of the hand. Both were treated for sprained wrist. There was no deformity or crepitus in either case. One came for consultation five weeks after injury, and the other two months after injury, because of gradually increasing pain, swelling, and impairment of function. Röntgenograms showed an impacted Colles' fracture in each case.

*Avulsion of Ulnar Styloid.* (One case.)—A woman aged 62, while attempting to unscrew the top from a fruit-jar two months previously, felt a sharp pain in her right wrist, which has been painful and sore ever since. A röntgenogram showed separation of the tip of the ulnar styloid (sprain fracture).

The treatment consisted of rest and massage. She was advised that the loose piece would either absorb, or it might act as a foreign body, cause a chronic irritation, and then require excision.



*Linear Fracture of the Radial Styloid.* (Four cases.)—Three of these cases were due to back-fire while cranking an automobile; the other, to injury caused by the hand being caught in a pulley. These injured wrists gave no symptoms of fracture except slight swelling and pain on attempting to use the hand. The three patients came for consultation within a few weeks after injury because of an increasing disability due to pain and soreness. Röntgenograms showed fine but definite lines of fracture without displacement. Treatment by immobilization and massage gave immediate relief.

*Triangular Fracture of the Distal End of the Ulna Extending into the Epiphyseal Line with Partial Separation of the Fragment from the Epiphysis.* (One case.)—The patient, a boy, aged 14, fell from a horse and struck on the ulnar side of the hand. This "sprained

showed epiphyseal separation of both bones. Replacement under an anesthetic was only partially successful. Further treatment was refused.

In epiphyseal separation the future bone growth may be retarded by failure properly to approximate the displaced epiphyses. Where manipulative methods have failed, open operation is indicated.<sup>1</sup>

*Fracture of the Carpal Scaphoid.* (Three cases.)—

CASE 1.—The patient, a young man, age 24, sprained his wrist six years previously while playing football. He has complained of pain and impaired function ever since the injury. The joint "locks" at times, and is then very sore for several days. He has never been able to exert a "pushing force" since the injury, such as putting up a dumb-bell. Examination showed no deformity and only slight tenderness over the region of the scaphoid. A röntgenogram (Fig. 1) showed a well-



Fig. 3.

wrist" proved on Röntgen examination to be a sprain fracture. Treatment: immobilization and massage.

*Epiphyseal Separation of the Distal End of the Radius Alone.* (One case.)—The patient, a girl, aged 12, fell and injured her wrist ten days before she asked for consultation. There were very few symptoms at first, but within the past two or three days the pain and swelling have increased. An examination showed a swollen and very tender wrist, but no deformity. Röntgenogram showed a well-marked separation of the radial epiphysis. After an unsuccessful attempt had been made to replace the separated epiphysis by external manipulation, an open operation was performed, and the displaced epiphyses were easily replaced.

*Epiphyseal Separation of the Distal Ends of Both the Radius and Ulna.* (One case.)—A boy, aged 8, fell from a wagon; but no pain was complained of at the time of the accident. Two days later pain and swelling developed, which rapidly became unbearable. At the time of the examination no deformity could be demonstrated on account of the swelling. Röntgenogram



Fig. 4.

defined fracture through the neck of the scaphoid with some rarefaction, indicating a loose piece of bone and traumatic arthritis. Excision of the loose bone was advised.

CASE 2.—An undertaker, age 40, fell two years previously, striking on the palm of the hand. He was treated for "sprained wrist." There had been a gradual onset of pain, soreness, and impaired function with limitation of motion, extension being extremely painful. On examination no swelling or deformity could be demonstrated or tenderness localized. Unquestionable diagnosis of fractured scaphoid was made by a röntgenogram. (Fig. 2.)

CASE 3.—A male, age 35, fell down stairs and "sprained" his right wrist six months previously. He came for consultation because of pain and soreness, which had impaired the use of the wrist ever since the injury. On examination a definite tenderness could be made out by palpation between the tendons of the extensor longus and extensor brevis pollicis (anatomical

snuff-box). A röntgenogram showed a sprain fracture of the scaphoid. (Fig. 3.)

Scaphoid fracture is the most frequent carpal lesion. It makes up about 5 per cent of all fractures in that region. In a "Clinical Talk on Diagnosis of Injuries of the Carpus" Dr. John B. Murphy<sup>2</sup> estimates the much higher percentage of 1 to 2 per cent of all fractures. He says: "This fracture is usually caused by direct violence, or falls in which the line of force transmitted upward from the palm of the hand tends to jam the scaphoid between the distal row of the carpals and the lower end of the radius, causing fracture. The diagnosis is made by tenderness in

since the accident, but recently the pain had increased, and this constant and increasing soreness and stiffness prevented him from work.

On examination, the wrist was found to be slightly swollen and tender, with some stiffness. The röntgenogram (Fig. 4) showed a fracture of the semilunar bone with a loose piece of bone in the joint and a traumatic arthritis. Excision of the loose bone cured the symptoms.

CASE 2.—A carpenter, aged 36, fell one year ago with his thumb extended in such a way as to produce acute ulnar flexion of the hand. There had been soreness and stiffness ever since the injury. Hyperextension caused so much pain that he was unable to use a hammer, preventing him from working at his trade. Examination demonstrated tenderness over the anterior por-



Fig. 5.

the anatomic snuff box, which can be demonstrated in recent and long standing cases, by limited motion, and by knuckle percussion, which consists of gently tapping with a pleximeter the ends of the first, second, and third metacarpals with the patient's fingers flexed and the hand held in radial flexion. Gentle tapping, transmitted to the fractured scaphoid through the distal carpals, causes severe pain. Positive diagnosis can be made by the röntgenogram, which should give sharp bone detail, as the fragments may be in perfect apposition and the line of fracture show only as a fine slit."

*Fracture of the Semilunar Bone. (Two cases.)—*

CASE 1.—The patient, male, aged 40, a farmer, two years ago was struck on the dorsal surface of the wrist with a wrench, and has had always more or less pain



Fig. 6.

tion of the wrist joint, but it could not be localized. A röntgenogram failed to demonstrate a distinct line of fracture, but showed a rarefaction of the bone. Diagnosis: a traumatic arthritis due to fracture. Treatment advised: rest and massage with instructions to return for excision if conservative treatment was of no benefit.

Murphy says:<sup>3</sup> "Fracture of the semilunar bone is a rather rare lesion caused by falls on the hand, cranking injuries, and direct violence. There is not a great deal of disability with this fracture, but if it is allowed to go on, and is treated as a sprain, there will be more or less impairment of function with continuous pain and swelling due to a traumatic arthritis from the loose piece of bone.

There are no injuries of the body that need more accurate knowledge of anatomy for their



proper diagnosis than those of the carpus; without such knowledge the x-ray is more of a trap than a help.

*Sprain Fracture of the External Malleolus.* (Two cases.)—Both patients were adults, and each received injury by twisting the ankle while falling. Treatment for sprained ankle had been given, and both patients had been encouraged to walk. After one week, the pain and swelling became unbearable. Examination showed the joint tender and swollen, and soreness more marked over the external malleolus. Röntgenograms showed fracture of the external malleolus in each case.

Fractures of the fibula within the area of the tibiofibular ligament show only slight displacement. Patients usually can walk after this injury, though not without pain and swelling. If the patient walks about too early, persistent tenderness, due to excessive callus-formation, may result. The treatment consists in immobilization and massage begun early.

*Spiral Fracture of the Distal End of the Fibula with Tearing off of the Processus Posterior Tali* (sprain fracture). (Fig. 5.)—This process, also known as the external tubercle of the astragalus, gives attachment to the posterior fasciculus of the external lateral ligament, and may be fractured as a result of severe strain on this ligament. This tubercle sometimes exists as a separate bone not attached to the astragalus. It is then known as the *os trigonum*. Care must be exercised in interpreting x-ray plates in order not to mistake it for a fracture. Spiral fractures into the joint at the distal end of the fibula are usually produced by twisting the body with the foot fixed. The patient in this case was a young lady, aged 22. The injury was due to twisting of the ankle while alighting from a buggy.

*Fracture of the Processus Posterior Tali* (sprain fracture). (One case.)—A young lady, aged 20, injured her right ankle one month previously. She has been treated for sprained ankle, which has been swollen and tender ever since the injury. A röntgenogram (Fig. 6) showed a fracture of the external tubercle of the astragalus. Rest, massage, and bandage gave relief.

*Avulsion of the Plate of the Bone from the Neck of the Astragalus by the Anterior Tibiotarsal Ligament.* (sprain fracture). (One case.)—A young man, aged 22, was injured when a load of hay tipped over. He noticed a slight pain, and thought he had sprained his ankle slightly, but continued to walk for the next two days. Then the joint suddenly became much worse with severe pain and swelling. A röntgenogram showed a loose piece of bone torn from the neck of the astragalus. To accomplish this there must have been a partial sub-luxation, tearing the anterior tibiotarsal ligament from its bony attachment to the astragalus. Treatment: immobilization by means of a plaster cast.

These injuries present none of the typical signs of fracture. It is only with careful röntgenograms taken at different angles, showing sharp, fine detail, together with correct interpretation, that a positive diagnosis can be made, and even then the röntgenologist may overlook a fracture

that may be taken at such an angle as to obscure the line of fracture. I would advise a more frequent resort to stereoscopic röntgenograms, especially for those whose experience in interpretation is limited. The röntgenogram, as you know, is only a production of shadows of varying intensity superimposed one on another. This makes it very difficult to differentiate the different shadow-casting structures, unless one is an expert. In the stereoröntgenogram, the depth and perspective are brought out sharply; and it is very gratifying, while viewing plates stereoscopically, to observe unrecognizable shadows and blurs suddenly shape themselves into recognizable structures. By this method the amount of displacement and relative position of fragments in fractures can be more easily determined.

#### CONCLUSIONS

Sprain of the wrist is rare; fracture is common.

Any injury to the wrist, no matter how trivial, should be regarded with suspicion until fracture is disproved.

Many sprains with fracture produce permanent stiffness. They are not recognized at first, and ankylosis may result where they are treated by excessive and ill-advised movements.

Röntgenograms showing sharp, fine detail should be made at different angles or stereoscopically of all injuries to wrist- and ankle-joints.

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#### DISCUSSION

DR. H. M. COLLISON: I desire to ask what was the treatment of the impacted fracture of the radius of six weeks' standing.

DR. C. N. CALLANDER (Fargo): I very much enjoyed Dr. La Rose's pictures, especially as he has selected the most typical of all our fracture cases, those that approach the wrist. I want to speak only of those fractures of which Dr. La Rose spoke, the scaphoid fractures and of the next bone, the semilunar, that are sometimes associated with this. The doctor at the close of his paper made the pertinent remark that in every case presenting itself to us with a painful wrist with a traumatic history, whether that be immediately presented or presented late because of subsequent conditions of pain, a peculiar condition will be present in many of those cases, that of a thickening of the anterior-posterior diameter due to some displacement forward of either the semilunar or a piece of the semilunar fracture.



DR. W. A. GARRISH (Jamestown): I enjoyed the paper very much. I have two plates that I wish I had brought with me where the semilunar bone kicked forward completely, kicked out by the cranking of a Ford car, completely kicked out and reversed upon itself so that it had to be removed by excision. We could not possibly reduce the dislocation.

DR. LAROSE (closing): The fracture of six weeks' standing was simply put up at rest and given massage. It was an impacted fracture, the position was not bad, but there was a great deal of arthritis due to the fact that the fracture was not flexed and the woman had tried to use the hand. I do not believe that the fracture could have been improved upon much, so far as position goes, other than to give it time enough to overcome the inflammation produced by the constant irritation.

Dr. Callander says a great many of these semilunar fractures and scaphoid fractures will produce deformity of the wrist. Probably I did not bring out a point

in my paper which, I see now, I have overlooked, and it is, when you make a diagnosis of a fracture of the scaphoid, do not be in a hurry to remove the fractured bone. While the scaphoid receives its blood supply only from the surrounding tendons, and very often on account of poor blood supply fails to heal, still there is no hurry; but, if this loose piece causes swelling and causes this thickening that the doctor spoke about, then I think it is a case for excision; and the same applies to the semilunar.

Dr. Garrish spoke about a great many scaphoid injuries produced in the manner he suggested, by indirect violence or by cranking injuries that are very often associated with them, and dislocation of the semilunar bone, the bone being pushed out of its natural attachments, and so lying up on the wrist anterior to the radius. The treatment is to remove the bone, for you cannot put it back, and it would not stay if you put it back.

## PERITONITIS IN CHILDREN: A BRIEF STUDY OF ITS PATHOLOGIC PHYSIOLOGY\*

By S. M. HOHF, M. D.

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In presenting this paper it is my purpose mainly to aid in stimulating an interest in the investigation of the condition known as acidosis, especially as related to the acute invasions of the peritoneum by pathogenic organisms in children. Children were selected for this study for the reason that, early in my experience, it was noted that the manifestations in children of sharp attacks of the acute infections were not different in many respects from those observed in diabetes mellitus, nephritis, and the obscure condition known as recurrent vomiting plus diarrhea, in which it is now quite definitely established that acidosis is the disturbing element.

A group of 34 children, ranging in age from eighteen months to ten years with acute infections of the peritoneum, form the basis of this study. In 24 of these it was found that the colon bacillus was the predominating organism responsible for the lesion; in 5, the staphylococcus aureus; in 4, the streptococcus; and in 1, the pneumococcus. In all, however, a mixed infection existed.

In a search through medical literature, one is impressed with the lack of clearness of interpretation of the term *acidosis*, many employing the term apparently solely upon the finding of the acetone bases in the urine, which we now know

possesses little real value, since they are found in many conditions, even in normal children. The qualitative analysis of the urine does possess, as regards its acidity, certain values in the condition under discussion, but only of a confirmatory nature. It points to only the acid that is being eliminated by the kidneys, but does not afford necessarily any insight into the condition of the blood, and by this fluid of the tissues of the body, which is of the utmost importance in this condition. Acidosis, then, may be considered a condition in which there exists an excess of acid products in the blood, due to an excessive formation or a deficient oxidation of acids of normal metabolism. When these conditions lead to morbid processes, acid intoxication is commonly implied.

It is from this standpoint that this preliminary report upon this important condition with reference to peritonitis is considered.

The absorption of bacteria and their toxins into the circulation, from whatever source and especially from the peritoneum, is of much greater consequence than the destruction of the tissues locally involved; and it should not be overlooked that the activity of absorption under certain conditions is increased in the early stages of the infection, which may be subsequently diminished owing to the blood and lymph capillaries becoming blocked by thrombosis and pressure.

\*Read at the 35th annual meeting of the South Dakota State Medical Association at Aberdeen, May 23 and 24, 1916.

Therefore it is necessary in certain instances to give more heed to the systemic manifestations of the patient than to direct our attention altogether to the local conditions, however important these may be. Now, the uniformity of the reaction of the blood under normal conditions is controlled by its content of bicarbonate of soda, by its acid and alkaline phosphate of sodium and potassium, and by its high percentage of proteids, which give rise to large amounts of acid products. There is no doubt that most of the chemical processes of metabolism are carried on in the tissue cells, upon which, in a large measure, the normal reaction of the blood depends. But, on the other hand, in maintaining the normal reaction of the tissues the blood undoubtedly wields an important influence in that it provides the means, or becomes the vehicle, by which bases that have been lost in the neutralization of acids by cell activity are replenished to the tissues. There is undoubted evidence at hand that the sensitive enzymes and chemical processes of the body are seriously interfered with if not totally inhibited by the tissue cells and fluids being flooded by pathogenic organisms and their toxins, thus preparing the way or probably initiating faulty intermediate metabolism, which is manifest primarily by the reduction in the bicarbonate content of the blood and the accumulation of acid products in the tissues. And if the acid accumulation is sufficient to neutralize the bicarbonate reserve of the blood below normal, serious and even fatal consequences may develop.

Significant of the above is the following history and characteristic of a case of the streptococcic type of infection with fatal termination:

A little girl, aged 8, was admitted to the hospital fifty-two hours after an acute onset of sharp abdominal cramp-like pains, which soon became continuous. On admission she vomited incessantly; the abdomen was moderately distended. Her color was gray; the eyes were sunken; there was marked dyspnea of the air-hunger type; restlessness and fear existed; but there was no cyanosis. Temperature, 99°; pulse, 152. The urine was strongly acid, but there was no marked change in the acetone bodies. Leucocytes, 23,000; polynuclears, 60 per cent, indicating a reduction. The bicarbonate of the blood was reduced, and the reaction had shifted toward the acid side.

Under slight anesthesia the abdomen was opened, evacuating apparently a full abdomen of a reddish seropurulent fluid. An infusion of 400 c.c. of a 4 per cent solution of bicarbonate of soda produced a profound influence upon her condition. The respiration diminished in depth and rate, and the child presented within four hours every evidence of well-being. No perceptible

change in the reaction of the urine was noted, indicating an increased degree of alkali-tolerance. In twelve hours rectal dripping was begun, and 700 c.c. of the 4 per cent solution were instilled. Despite this vigorous administration of alkali, coma developed and death ensued thirty-six hours after admission.

There can be no doubt that bicarbonate of soda is of the greatest importance in the maintenance of normal metabolism; but its chemical interaction in the tissues need not be dwelt upon here since that phase of the subject is fully covered in the literature.

There are several methods, all possessing definite values, by which the bicarbonate reduction in the plasma may be determined. First, it may be roughly estimated by giving bicarbonate of soda by mouth. In a normal child three to seven gm. is usually sufficient to render the urine alkaline, whereas if the alkaline reserve in the blood and tissues has diminished below normal as a result of acid accumulation, a greatly increased amount is necessary to note any change in the reaction of the urine. The probable explanation is that the reserve supply of base has been drawn upon to neutralize the acids which are produced; and, in giving the alkali, the depleted reserve in the tissues is first replenished before an accumulating effect is observed in the blood and urine. This test is known as the "alkali-tolerance test," and was first brought out by Sellards. Second is that of determining the carbon-dioxide tension in the alveolar air. This is an indirect method in which it has been determined that the carbon-dioxide tension in the alveoli corresponds very closely to that of the arterial blood. The accuracy, however, is directly related to the nervous control and mechanical efficiency of both the respiratory and circulatory systems. The method is not a complicated one, and is applicable in clinical work with adults. In children, however, it is difficult to secure satisfactory samples, hence it was not used in this study. A third method is that devised by Bancroft, by which the acidity of the blood is determined from the hemoglobin affinity for oxygen under standard conditions. This method involves a highly specialized technic, and is not available for every-day work. The fourth is that introduced also by Sellards, and the one used by me in conjunction with the first, or the alkali-tolerance test. It is a direct method in that the blood is used, and is carried out by removing the proteins of the serum with absolute alcohol and evaporating the filtrate with a

few drops of phenolphthaleine. A perfectly normal serum will result in a deep purple color. When alkali reduction is present the color will be greatly modified or entirely absent, depending upon the degree of basic reduction. In employing this test it was found that the reaction seemed particularly active with the plasma of those cases in which the colon bacillus was the infecting organism. Next the staphylococcus, and least of all the streptococcus. The probable explanation of this is, aside from that of starvation, that the greater the virulence of the infective organism and the shorter the period of absorption, the less the draft upon the reserve supply of alkali in the tissues and the acid accumulation products in the blood. The average period of time from the inception of the infection, so far as could be determined, until the first test was made, was approximately five days for the colon bacillus, four for the staphylococcus, and two for the streptococcus.

A description of a case of the colon bacillus type of prolonged infection, which is illustrative of many, may be introduced at this point:

Little R. J., aged 4, brought to hospital about forty-eight hours after the onset of abdominal distension. He had had moderate, irregular, cramp-like pains, diffuse in character, for three days preceding the bloating, and for which castor oil was given by his mother with slight benefit. Owing to restlessness, the lack of desire for food, with nausea and attempts at vomiting, he was taken to his physician, who, after persistent and careful attempts to evacuate the bowels, with absolutely negative results, referred him to the hospital. Urinary retention was also present. On admission he was found in a condition of extreme restlessness, tossing from side to side, his mentality sluggish, and respiratory movements pauseless, deep, and certainly distinctive of effort, but no cyanosis. The abdomen was greatly distended, but seemingly lacked excessive tenderness. Temperature, 104°; pulse, 140. A catheterized specimen of urine showed increased elimination of acid bodies. The abdomen was immediately opened and evacuated, and while yet asleep, 15 c.c. of blood was obtained, whose serum showed a bicarbonate reduction sufficient to render the phthalein test almost colorless. Bicarbonate instillations per rectum were immediately instituted, but not until 700 c.c. had been given, approximately 28 gm. of alkali, was there any perceptible change in his condition. His respiration then gradually began to diminish in depth and rapidity, and every evidence of acid accumulation disappeared.

Successive tests of the serum were entirely in consonance with the clinical findings, in that the reaction swung to the alkaline side, and there remained as recovery ensued. Five hundred c.c. of the bicarbonate solution were continued with four hourly intermissions for the

first twenty-four hours, and eight hourly intermissions thereafter for five days, giving a total of 280 gm. of alkali. Despite this enormous quantity it was barely possible to render the urine alkaline in reaction, indicating also a high degree of alkali-tolerance.

With the uninterrupted findings in the reaction of the plasma in all these cases tending to support the hypothesis that the physiologic and pathologic processes of septic absorption predispose to, or initiate, a condition which, if unchecked, will render life impossible, it is clear to me, even though the clinical evidence of acidosis be not present, that alkali therapy is indicated. The administration of bicarbonate of soda will prevent the development of acid accumulation in the tissues and blood. Its use has become routine with me, and it has entirely replaced the normal salt solution in my work. It is given in sufficient quantities to render the urine neutral or alkaline. In many instances a considerable period before this reduction in the urine was obtained would the distressing subjective condition of hyperpnea and restlessness disappear.

Further observations are being conducted, and when these make more clear the processes on which the phenomena of acidosis depend, my treatment will be directed more intelligently. I believe, however, it can be shown at the present time that the administration of bicarbonate of soda will result in a cessation of all clinical evidence of acidosis, and produce in the laboratory tests which react identically with condition of normality.

NOTE.—Since a blood count is made as a matter of hospital routine, it was of interest to note the effects upon the leucocytes apparently as a direct result of the alkaline instillations. While in many instances an increase in the total number of white cells was found, not a little discrepancy existed in the percentage of polynuclears as compared with the total number of white cells. This was especially to be noted in the severer types of infection. Thus a fall in the absolute number of polynuclears with a stationary or even rising total of white cells, was of serious import. It undoubtedly indicated an exhaustion of the polynuclear-forming elements of the blood that reflected unmistakably upon the prognosis if allowed to continue unchecked. It appeared that the blood-



forming elements, from the standpoint of increase of polynuclears, were revived and stimulated by the bicarbonate in direct proportion as the reaction of the plasma towards alkalinity approached the normal.

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## RADIUM IN THE TREATMENT OF LYMPHANGIOMA OF THE TONGUE

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The treatment of lymphangioma of the tongue, until recently, has been considered surgical, although the results obtained have not been very encouraging on account of the frequency of the recurrences of the condition and also the difficulties encountered in trying to make a useful organ out of a large, thickened, and more than useless tongue. Surgical measures have usually

and states that this type of tumor is one more condition which can be added to the list of those in which radium has a specific action. He states that the effect of radium on lymphangiomas is not destructive, but is an alterative action similar



Fig. 1 (144,540). Lymphangioma of the tongue.

consisted in excising as much of the tumor mass as possible, and then, by cutting out wedge-shaped pieces of tissue from about the margin of the tongue, attempting to construct a useful organ.

Abbe<sup>1</sup> reports three cases of lymphangioma of the tongue successfully treated by radium,

1. Abbe, R.: Lymphangioma and radium. *Medical Record*, 1915, lxxxviii, 215-17.

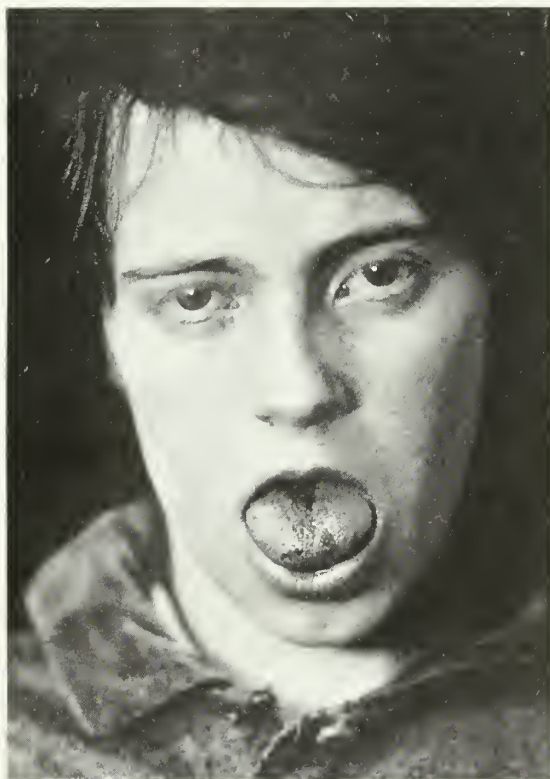


Fig. 2 (144,540). Same as Fig. 1, two months after treatment.

to its effect on papilloma or basal-cell epithelioma. He conjectures that the specific action of radium on lymphangioma is a charging up of the disordered cells of the tumor with negative electric particles, which, when shot into the cells

in proper quantity, completely change their habit of growth and permanently restore them to a perfectly healthy condition. The tumor gradually shrinks and disappears, and the tongue takes on its normal appearance and outline.

I report here two cases of lymphangioma of the tongue treated by radium at the Mayo Clinic:

CASE 144,540—A. J., a girl, aged 12 years. The patient came to the Clinic October 29, 1915. She complained of the size of her tongue, which caused diffi-

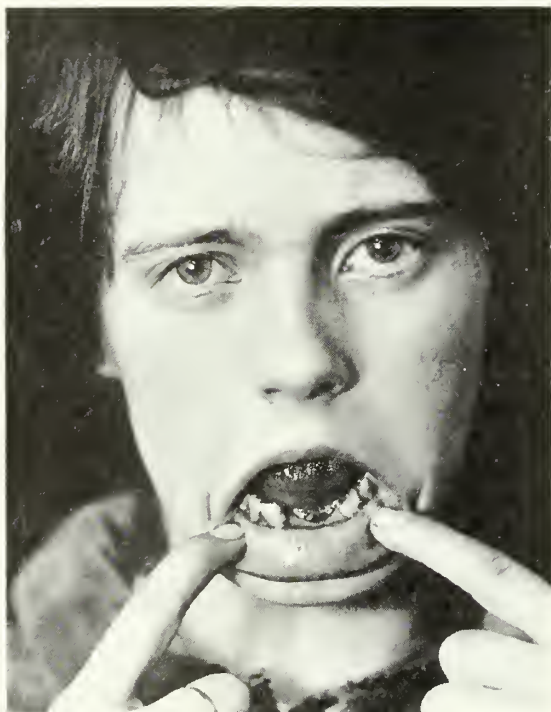


Fig. 3 (144,540). Same as Fig. 1, showing displacement of teeth from the large tumor.

culty in eating and talking. Her father stated that she had been unable to put her tongue back in her mouth for four years. Eight years ago the parents noticed that her tongue was larger than normal, and since that time it had been increasing in size. For the last two months the increase in size had been more marked. During the last six weeks the patient had had seventeen x-ray treatments with no improvement. Her lower central incisor teeth had been removed six months previously, as they were loosened by the tongue. Examination showed the condition of her tongue to be as illustrated in Fig. 1: typical lymphangioma. The patient was a pitiable sight. Her tongue was dry and cracked, and she was unable to draw it back into the mouth. It was impossible to understand what she said. She was treated with radium for two hours daily with a 22 mg. tube and no screening for a period of twelve days. She returned to the Clinic two months after this treatment showing the remarkable improvement evident in Fig. 2. Her tongue fell back into her mouth



Fig. 4 (151,037). Lymphangioma of the left half of the tongue.

readily, but was still slightly thickened. She has received further radium treatment, and the parents say she continues to improve. Fig. 3 shows the displacement of the teeth by the tongue.

CASE 151,037—K. C., a boy, aged 2½ years. When the child was one year old his mother noticed a thickening near the center of the dorsum of the tongue about the size of a pea. This condition spread over the entire left side of the tongue. The child had been examined several times by physicians, but nothing was done in the way of treatment. The left half of the tongue, as shown in Fig. 4, was much thickened, and



Fig. 5 (151,037). Same as Fig. 4, two and one-half months after treatment.



the surface showed pearly papules and other areas that resembled angioma. The condition was lymphangioma. The left side of the tongue was given two hours daily of a 28 mg. tube of radium, unscreened, for a period of ten days. Soon after the treatment was begun a marked improvement was noticed. Fig. 5 shows the condition two and one-half months after treatment, when the patient returned to the Clinic. The large tumor on the left side of the tongue had entirely disappeared and the tongue felt and appeared normal.

These cases were treated by superficial appli-

cation, but incising the tumor and placing the radium in the center of it gives good results in similar tumors.

It would seem that radium is a specific for angioma and lymphangioma, and its great value is, that it gives such remarkable results in these conditions, which are not surgical. However, much is to be learned as to dosage and methods of applying the radium.

## THE ETIOLOGY OF ACUTE ANGINAS\*

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It is only within a comparatively few years that the importance of tonsils and mouth infection has been appreciated, and the subject of acute anginas has been neglected, not only in the interest of the individual affected, but also from a public-health standpoint. Sporadic cases of acute angina are so constantly present that they are recognized as one of the most frequent forms of infection with which the physician comes into contact, and the severe and frequently dangerous complications, arising from such a focus of infection, have made this subject of very great importance to all departments of medicine.

Severe epidemics of what has been termed septic sore throat have appeared in this country. These outbreaks have been traced to sporadic cases of acute tonsillitis; have spread with great rapidity, the infection being carried through a suitable medium of transmission; have attacked thousands of people; and have been attended, in many cases, by severe complications and by a fairly high mortality. Epidemics of septic sore throat occurred in Boston, Baltimore, Chicago, and Concord; and milder and less extensive epidemics occurred in other places. In the epidemic in Boston, 1,400 persons were affected; in Baltimore, 1,000; in Chicago, about 10,000; and in the Concord epidemic, 1,000 were affected. These epidemics of septic sore throat have been fully and thoroughly investigated and reported in medical literature. The disease was sudden and severe in its onset, and of a more virulent type than the usual sporadic cases of acute angina, and was attended by more severe local and constitutional symptoms and a greater tendency to cause complications.

In all these epidemics the infecting organism was a hemolytic capsulated streptococcus; the source of the infection was a streptococcic tonsillitis; and the medium of transmission was the milk supply, the udder of the cows becoming infected with a human strain of streptococcus introduced through the medium of contaminated hands.

Numerous outbreaks of a similar type of tonsillitis have doubtless occurred in this country; and a considerable number of such epidemics have occurred in England and have been traced to infected milk. Rosenau<sup>1</sup> has reported seven milk-borne epidemics of tonsillitis, all of which occurred in Europe; and Savage<sup>2</sup> has reported twelve such epidemics in the British Isles. It is evident, from the literature, that streptococcic sore throat occurring in epidemic form, is not at all uncommon as a milk-borne infection. Outbreaks of acute angina frequently occur among hospital nurses and institutional patients; and the infection is usually due to a type of streptococcus.

The hemolytic streptococcus gives rise to the most severe forms of acute anginas, attended by severe local and constitutional symptoms, frequently accompanied by complications, and is that type of infection of the fauces most likely to assume epidemic form if given a favorable medium of transmission. Dick and Burmeister<sup>3</sup> have shown, in their experimental work, that filtered extracts of infected tonsils are highly toxic for animals, that the degree of toxicity of the extracts depends upon the type of organisms present within the tonsils, and that the extract of those tonsils which are infected with the hemolytic streptococcus are the most toxic. The streptococcus *viridans* is frequently the infecting

\*Read before the Hennepin County Medical Society, October 11, 1915.



organism in acute anginas, though more frequently its clinical course is that of a subacute or chronic form of tonsillitis characterized by a milder course, tendency to become chronic, and frequent recurrences, due, probably, to the shorter duration of its acquired immunity. It is frequently present in diseased tonsils and tooth infections, and is quite frequently the cause of complications, especially endocarditis.

Pneumococcic infections of the throat occur quite frequently during the winter and spring months, when infections by the pneumococcus are most prevalent. These pneumococcic anginas may be of a severe type attended by severe local and constitutional symptoms, and are frequently attended by edematous infiltration of the soft palate, which may also involve the epiglottis and larynx, causing a dyspnea, which may be fatal. Theisen<sup>4</sup> reports five cases that came under his observation during the winter of 1913, and in all of these there was a marked edema of the anterior surface of the epiglottis. A number of cases have been reported of sudden and fatal edema of the epiglottis and larynx due to infection with the pneumococcus.

Association of the fusiform bacilli and spirilla was first observed by Rauchfus, who demonstrated the bacilli and spirilla in acute anginas. In 1894 Plaut described these organisms in cases of angina; and in 1896 Vincent described the fusiform bacilli and spirilla in cases of hospital gangrene and in ulceromembranous anginas. The frequency and wide-spread distribution of this form of infection of the fauces is shown by the large number of observers who later reported the presence of these organisms as the infective agents in acute anginas. Vincent's angina is more frequently present than is generally recognized, and its recognition is of very great importance on account of its prevalence and on account of the serious and destructive lesions that may be caused by this form of infection. That the infecting organisms are frequently unrecognized may be due to failure to make smear-examinations and to the dependence upon cultures for a bacteriological diagnosis. Examination of cultures will not reveal the presence of the bacilli and spirilla, as these organisms do not grow on ordinary culture media.

Ulceromembranous anginas due to Vincent's organisms are frequently present in connection with other forms of anginas; and occasionally severe and destructive ulcerations occur during the course of diphtheria and scarlet fever, which

are due to the fusiform bacilli and not to the Klebs-Löffler of the streptococcus. Secondary infection of a Vincent's ulceromembranous angina may occur, as recently observed by the writer in a case of Vincent's angina which, during the later stages of the disease, became infected with streptococci resulting in a general systemic infection with recovery of the hemolytic streptococcus from the blood. Larson and Barron<sup>5</sup> recovered the fusiform bacilli directly from the blood in a case of ulceration and gangrene of the mouth and jaw due to Vincent's organisms.

An acute ulcerative angina, first described by Bouveret, sometimes appears during the early stages of typhoid. Potter<sup>6</sup> gives their frequency as occurring in 6 to 12 per cent of cases of enteric fever, and states that they frequently precede the appearance of the roseola and occasionally before a positive Widal is obtained. They may be mistaken for lues, diphtheria, scarlet fever, or a local lesion. They are not confined to the lymphoid tissue, and are due to secondary infection by staphylococci or streptococci upon mucous membrane whose nutrition has been lowered by the existing disease.

Reference to various chronic foci of infection is of importance in the discussion of the etiology of acute anginas. The micro-organisms mentioned as the exciting causes may be more or less constantly present in such infected foci as alveolar abscesses, pyorrhea, alveolaris, infected cysts, chronically infected faucial and pharyngeal tonsils, nasal sinuses, and infected middle ears. The pathogenic micro-organisms which are constantly present in infected teeth may be the direct cause of infection of the oropharynx, or, by lowering both the local and general resistance of the patient, may predispose to infection of the fauces. Vincent's organisms are quite constantly present in the mouth and about the teeth, but are not likely to be the cause of an acute infection unless the teeth, mucous membranes, or tonsils are diseased, or unless the general resisting power of the individual becomes impaired. The disease is much more common among the poorly nourished and frequently follows the acute infectious diseases.

The hypertrophied faucial tonsil, which is so frequently the habitat of micro-organisms, especially the different strains of streptococcus, is the most important predisposing cause of acute anginas. The type of tonsil which is capable of causing infection is not revealed by inspection of the fauces. It is doubtful if any hypertrophied

faucial tonsil is not a potential danger to the individual. The very small fibrous tonsil, visible only by retracting the pillars of the fauces, is frequently the type of tonsil most likely to be the seat of acute infections or to be the focus of infection for serious complications. Another type of tonsil which frequently gives rise to trouble, both local and systemic, is the tonsil stump remaining after partial removal of the gland. Removal of a portion of the tonsil often obliterates the openings of crypts leading to the deeper portion of the gland, resulting in retention of infection by the surface scar and interference with drainage. This type of tonsil may be subject to acute infections and is very liable to be a source of systemic infection.

Examination of the flora of hypertrophied tonsils is of interest as showing the type of micro-organisms that are constantly present. It should be emphasized, in this connection, that cultures made from the surface of tonsils are not indica-

tive of the kind of organisms within the gland. Cultures should be obtained from the bottom of the crypts. Davis<sup>7</sup> examined 61 cases of hypertrophied tonsils, and found the streptococcus hemolyticus to be the predominating organism in 50; and in a series of cases including chronic articular, renal, and cardiac affections, and chronic tonsillitis, the crypts of the extirpated tonsils generally showed the hemolytic streptococcus as the predominating organism.

A study of chronically infected tonsils will justify us in considering an individual with hypertrophied tonsils as a streptococcus-carrier. This is also true of infected teeth.

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## SOME SURGICAL ASPECTS OF GOITER\*

By ARTHUR T. MANN, M.D., F.A.C.S.

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There is so much to say, and the time allotted for this paper is so short, that I shall give only some of the aspects of the subject which seem of special interest to me.

As for the treatment of Graves' disease:

1. The over-fatigued individual who develops a goiter without other symptoms, should not have the goiter excised. Proper medical treatment, probably the combined thyroid proteids, together with a régime of rest from nervous and physical strains, should be effective in this class of cases.

2. *Iodine*.—A few innocuous, simple goiters seem to be changed into the more serious exophthalmic type by injudicious medication with iodine. The goiter must be supposed to have reached the limit of its normal compensation, and the excess of iodine in the circulation supplies more than the existing epithelium can assimilate and more or less rapid proliferation takes place. As a result, an excess of protonuclein flows out in the secretion, and the vicious circle of stimulation and depression is formed.

The possibility of a compensatory hypertrophy, which may be the reverse of this, would offer an opportunity for the iodine treatment,

that is, one which, because of a deficiency in the iodine in circulation, causes a deficient thyroid secretion or one poor in thyroglobulin, creating in the body tissues a greater demand for the secretion, which the thyroid attempts to supply by an increase in growth.

3. *Antithyroid serum, the serum of sheep or rabbits, taken about six weeks after injections at intervals of a few days, with the combined products of the human thyroid gland*.—This serum is of great benefit to the symptoms of acute toxic thyroidism, but the convalescence is protracted, and after the subsidence of the acute symptoms it must not be pushed unduly. In acute exacerbations of chronic thyroidism it must be used with caution and not beyond the period in which it seems to be beneficial. In the usual chronic case it should be stopped if, at the end of two or three days, it has intensified rather than alleviated the symptoms. It should not be used at all if the blood-pressure is above 150 mm. of mercury.

4. The operation of ligation of the blood-vessels and nerves of the thyroid, at favorable opportunities, is both theoretically and practically indicated, as it insures rest for the gland by cutting off, not only auto-activation, but all stimuli to that part of the gland.

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5. Partial thyroidectomy in exophthalmic goiter apparently cures by removing at once the excess of the normal secretion, and so allows the remaining portion to rest and to regain its ability to metabolize iodine.

Thyroidectomy is essential in cases of localized or partial thyroid disease, in which the diseased tissue causes constant autoactivation of the whole gland by the secretion of its abnormal portion, as well as those which cause marked pressure on the normal portions or the surrounding structures. But radical operation should be followed for a long time by appropriate treatment to relieve the strain on the remaining portion and enable it to undergo any necessary hypertrophy.

Simple hypertrophies carry with them the ever-existing dangers of thyroidism, and should seldom be dismissed as of trifling importance.

Medical treatment must give way to surgical as soon as the symptoms and the functional disorders in general cease to be affected by drugs. Some authorities place this time at a few weeks. Victor Horsley says it should not be over three months. Kocher says that when general practitioners consider the very dangerous consequences of long-standing Graves' disease, they will no longer take upon themselves the responsibility of delaying an operation which gives, when applied early, very striking results.

In regard to goiters in general: Albert Kocher, writing with a knowledge of his father's experience, says, we long ago abandoned the belief that every goiter must be first treated with internal remedies and referred to the surgeon only if internal medication fails: (1) Internal treatment is useless in nodular goiters in the process of secondary degeneration. (2) Diffuse colloid tumors that have resisted several brief periods of iodine medication, must be referred to the surgeon, especially if they have already given rise to functional disturbances. (3) All goiters that cause pronounced pressure symptoms must be treated by operation. (4) The same is true of those which produce cardiac symptoms, and (5) of goiters which are abnormally situated. (6) If a goiter develops suddenly and grows very rapidly, and if the shape and consistency are unusual, it must be operated on regardless of the patient's age. (7) A goiter showing sensitiveness on pressure, especially if it causes spontaneous pain, must be referred to the surgeon.

There are certain contra-indications to operation, of course. If the patient is in fair condition, operate; if the pulse is rapid (130 or over), or if there are sudden fluctuations in rate and

tension, or if the general condition is poor, treatment for a few days to a few weeks should be given until the condition improves. When the symptoms are severe ligations of one or more arteries or of one or both upper poles may reduce the thyroid output so that the patient may be in condition for excision later.

Ligation of the poles is rather more effective than ligation of the arteries, (1) because some branch anastomosis may continue the blood supply to the poles to a greater or less degree; (2) because the ligation of the poles cuts off, in addition, the lymphatic return, as well as a good deal of the venous return, and would tend to check, materially, the outflow of thyroid products and thus reduce the toxic effects of the goiter more than merely tying the artery; (3) because it cuts off the nervous stimuli to the poles.

These procedures are curative in a few mild cases, but in the main they are palliative, and are used in the severe types to prepare the patient for the more radical operation.

In the larger operations, hemorrhage has been one of the bugbears of the operation. It can usually be avoided by a careful attention to details. One of the most important points is to expose the growth thoroughly (1) by a sufficient incision, (2) by adequate retraction, usually with previous division of the overlying muscles. (3) by carefully identifying the capsule itself, which is usually easy because of its glistening appearance and its reddish-purple color. Every layer of the deep fascia must be divided widely, throughout the whole field of the operation. (4) Dislocate the lobe out of its bed by finger-motion, and keep it on the stretch. This maneuver gives almost complete control of the hemorrhage during all of the subsequent steps of the operation, by putting the vessels on the stretch, and usually makes simple and easy what would otherwise often be a difficult and bloody procedure. (5) Early division of the isthmus gives a mobility to the lobe, which is to be removed, and greatly facilitates the operation.

Injury to the recurrent laryngeal nerve with asphyxia or aphonia is a grave accident, and has happened in the past with sufficient frequency to put every surgeon on his guard. This nerve is crossed by the inferior thyroid artery, and is accompanied by some of its branches. It ascends immediately behind the capsule of the thyroid gland in the groove between the larynx and the trachea. Modern surgery has decided that the best way to protect the nerve from in-



jury is to leave the posterior portion of the capsule intact. All vessels in this portion of the operation must be ligated between the capsule and the gland substance or in the substance of the gland itself, and, in some cases, leaving a thin layer of the gland in situ, covering the capsule.

Great care must be used in ligating the inferior thyroid artery lest the nerve be injured or included in the ligature. Halsted, instead of ligating the main artery, suggested and practiced thrusting forceps into the gland substance a little way inside of the capsule, thus catching the branches after they have entered the gland, making the ligation easy and safe, and making it practically impossible to injure the recurrent laryngeal nerve. This has the great additional advantage of having the posterior sheath of the gland and a portion of the gland substance as a protection to the parathyroids, which are left undisturbed and uninjured. It also has the great advantage of not disturbing the branch of the artery from which the terminal artery to the parathyroids comes. A somewhat similar method may be employed at the upper pole. The capsule may be split and the gland drawn over, exposing the branches of the superior thyroid artery after they have penetrated the capsule, where they are easily ligated, and the gland pulled inwards and downwards leaving the capsule in place.

The parathyroids are usually about four in number. Each is supplied by a terminal artery, usually arising from the inferior thyroid, though the superior pair may sometimes be supplied by a branch from an anastomosing artery connecting the inferior and superior arteries. Any bruising or tying which interferes with the blood supply in these small terminal branches throws the parathyroids out of use, and may lead to tetany with all of its evils, especially as the parathyroids vary in number and occasionally some of the other side may be absent. The surgeon should exercise scrupulous care in preserving anything which looks like parathyroid, and if, by accident, one should be removed, it should be transplanted immediately beneath the capsule of the thyroid tissue which is to remain. The parathyroids are difficult to find and are usually not seen. They are about the size of a grain of wheat flattened a little, and are of a grayish-red color.

The entire thyroid should never be removed, except in the presence of malignancy. If the entire gland is removed we must always expect

signs of myxedema except in those well past middle life. In these, occasionally, myxedema does not supervene. In many of them it will. The administration of the thyroid products will retard its appearance, and in some it will prevent it altogether.

In Kocher's clinic at Berne, just before the European war, I saw some cretins into whom he had transplanted active thyroid tissue, which he had just removed from patients with exophthalmic goiter, both sets of patients being under operation at the same time. Of the value of this procedure Kocher spoke with much caution. As, later on, a great part of the gland tissue degenerated, he advised multiple grafts, preferably into the spleen. Von Eiselsberg showed us a cretin at the Vienna clinic into whom he had transplanted active thyroid tissue in the same manner, but he was very doubtful in regard to the permanent improvement in these cases. The best results are obtained in myxedema, but too much must not be expected as a permanent result from this procedure on account of the universal tendency of transplanted gland tissue to degenerate. Good results have been obtained by von Eiselsberg, in a child of four years with intense tetany, by grafting particles of thyroid and parathyroids during the previous two years. Payr operated on seven patients with satisfactory results in three.

In regard to drainage after goiter operations, some degree of post-operative thyroidism is common. It sometimes follows the removal of an ordinary colloid goiter. It is due, most probably, to the absorption of the wound serum bearing thyroid products. If it were due to bruising and rough handling alone, it would occur at once like a hypodermic injection, but it does not. It usually comes on some hours afterwards, when it occurs. This makes it imperative to drain all exophthalmic cases, and it is wise to drain all others in which there has been a spilling of much gland contents into the wound. A simple stab-wound drain left in from a few hours to a few days will be sufficient.

Enucleation of thyroid adenomas is suitable only when the adenomas are few in number and form well-defined tumors. When they are multiple or inaccessible and largely in one lobe, it is better to do a resection of the lobe and a portion of the isthmus. When they are scattered throughout both lobes, a partial resection of both lobes should be done.

In diffuse goiters with enlargement of both

lobes, double resection is the operation of choice. To control the hemorrhage, dislocation of each lobe and the early section of the isthmus are usually sufficient. I have sometimes followed the suggestion of using stomach-clamps to compress the stumps just before the resection.

Intrathoracic goiter sometimes presents an extremely difficult and dangerous situation. An attempt to bring out the tumor compresses the trachea, and stops the respiration. To be successful one must be bold. If it is decided that the tumor can be delivered in this way, after all the upper portion of the lobe is freed, the lower mass in its capsule is freed from its bed cau-

tiously, as well as may be, by the fingers and by blunt dissection. Now with courage and in spite of the cessation of respiration, the tumor must be delivered rapidly and often with some force, so that the respiration may soon return, but with restraint lest the inferior artery may be torn off, if this has not been able to be tied previously. If it is too firmly wedged in to be delivered in this way, it must be scooped out piecemeal, as Kocher suggested, packed with gauze from time to time to control the often alarming hemorrhage, and the diminished tumor drawn out as rapidly as possible so that the vessels may be tied.

## STATE AID FOR SANATORIA FOR THE TUBERCULOSIS\*

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Before determining what we should ask of the State we must decide what we are going to make of the sanatorium or hospital for the tuberculous. If we intend to use these institutions only "to provide adequate medical and nursing care for sick people," then there is no need of a legislative program relating to State aid for sanatoria in which the tuberculous will be cared for, for there is no more reason why the State should provide hospitals for the tuberculous than for those suffering from the many other ills that flesh is heir to.

The specialist in diseases of the chest may very properly have his private sanatorium, for it is a well-recognized fact that he can get better results in treating his tuberculous patients in such an institution than at home.

There is a parallel for the private sanatorium in the many private hospitals which we have scattered over the country. The surgeon knows that he cannot do good surgical work in the home; therefore, if he has not access to a hospital of general character of municipal, church, or other type, he must build, or have built, a hospital for his own personal use. The function of these local hospitals has been enlarged so that now an occasional medical case is cared for, the reason being that the patient is homeless or that there is a possibility for better care in the hospital than in the home. The tendency is also toward sending obstetrical cases to the hospital for the reason that these, too, may be better and

more cheaply cared for in the hospital than at home.

No one asks the State to aid in the construction of these hospitals. The people that can afford it pay their own bills. The people that are not able to pay are cared for by the city, the county, the church, or some philanthropic organizations. True, it might be helpful for the State to appropriate money to aid, at least, in the support of these hospitals, but this would hardly meet with approval, either from a legislative or business point of view.

If, on the other hand, we look upon the housing of the tuberculous as a protective problem, we have a very different question. All communicable-disease patients should be hospitalized, not simply for the purpose of treating the patient, but for the protection of the people in general. For example, a diphtheria patient may be apparently well, or even never apparently sick, and yet it is necessary to keep such an individual in an isolation hospital until it has been demonstrated that he is no longer a harbinger of the diphtheria germs. He is hospitalized, not because he is sick, but because he is dangerous.

In this hospitalizing of those ill with a communicable disease there is a double benefit: first, to the individual (the best opportunity to recover), and, secondly, to the community (protection from the disease).

The hospitalizing of communicable diseases has not advanced far as yet in the United States. Certain cities provide contagious-disease

\*Presented at Mississippi Valley Conference on Tuberculosis, Louisville, Kentucky, October 5, 1916.

wards, but very few approach the necessary bed capacity for this most necessary protection. Some of the European countries have well-organized hospitals for the isolation of those ill with a communicable disease, and the bed capacity in these countries is governed by the district population.

Tuberculosis is now recognized as a communicable disease. Because of its very high death-rate, the people are showing a special interest in this disease, and are demanding its control. It is to be hoped that this is but the first step looking to the proper hospitalizing of all communicable diseases in this country.

The tuberculous may, for convenience, be divided into two groups, namely, the early and the advanced cases.

From a public-health point of view the early cases are not of special interest, for they are not necessarily dangerous to others, but we know that these cases will, sooner or later, become dangerous if not properly cared for. Hence we consider the proper care of these patients from two points of view, namely, the individual and the community, the wish being to bring about the recovery of the former and to protect the latter.

We know that the early case can be better cared for in a well-equipped institution than at home; and we therefore recommend the sanatorium for the early case. This may be provided under any one of the following groups:

1. The private sanatorium under the control of the specialist who is treating tuberculosis.
2. The philanthropic sanatoria, which are provided by those deeply interested in the recovery of the infected and in the protection of others.
3. Municipal or State sanatoria provided by the government with practically the same intent as under No. 2.

The well-to-do tuberculous can be cared for at home or at the private sanatorium. All those who are without an independent income, or without friends who are willing and able to help them financially during the time they are trying to regain their health, must depend upon the institutions belonging to the second or third group.

Many early cases are so situated as to permit of travel. An entire change of environment, as well as freedom from home influences, may be of direct benefit. It is permissible, therefore, that the sanatorium for the early case may be chosen without reference to nearness to home,

the chief point being a place with good environment, not too far from the markets, and easily reached by railroad.

The problem in dealing with these cases involves, in part, the recovery of the patient, but, from the point of view of the State, rather the prevention of future danger to a family or community that would follow if the early case were not properly cared for, and therefore later became an open or dangerous case.

The State may, therefore, well be asked to provide for the construction, equipment, and maintenance of these institutions. Whether the State shall provide for the entire expenses connected with such an institution is a question which must remain for each State to determine. If desirable, part of the expense of support for its patients may be thrown upon the district from which they come (municipality or county).

Caring for the advanced case is quite a different thing from caring for the incipient or early case. Here we start with the idea that in all probability the patient will not get well. True, we hope he may; and some do get well, but the chance is against such possibility, the points involved are the following: (1) the care of the invalid and (2) the protection of the people.

As a rule, the State has no responsibility in the first point. If the individuals or their friends are financially able to do so, they can properly be expected to bear the cost during their final illnesses, as for those ill from any other disease. If such patients cannot be cared for by their friends, then, naturally, they should be cared for by the district in which they live, as are patients ill with other diseases and too poor to care for themselves.

However, in the handling of these advanced cases the State's responsibility comes under the second point, for every advanced case—or, shall we say, every open case?—of tuberculosis is a source of danger to others. The care of the case becomes a public-health problem. The danger period extends over months or even years. These dangerous cases must be taken care of either at home or in an institution in such a way as to prevent the infection of others.

The burden of properly caring for these persons may be placed upon a municipality, a county, or a State. We are not dealing with a problem as relating to the individual, but as to the community; and this community responsibility is not limited to the home or residence of the infected person.



The principle of State aid for public schools has been generally accepted. As a rule, where this is carried out to the best advantage, the State Department of Education establishes certain standards for schools that are to receive State aid. The school district becomes the unit for State aid. If the district comes up to a prescribed standard, then it receives aid. The same basis might be well used for State aid in the care of the tuberculous.

Many municipalities make provision for the care of their people ill with communicable diseases requiring hospitalization, but this burden can hardly be borne by the country districts or the smaller municipalities unless taken from the larger viewpoint. The protection, as already stated, is not simply for the small district (village or township), but is for the community at large; therefore the county is a convenient division to be used as the unit in dealing with these problems.

Many States have already made provision for county sanatoria. In some instances the burden of cost for construction and maintenance has been thrown entirely on the county. In many instances this is too heavy a burden for the county to bear, and it should not be required to bear it alone, for the problem is state-wide or even nation-wide.

If we realize that tuberculosis is a communicable disease; that it must be cared for in such a way as to prevent the infection of others; that the advanced cases in many instances can better be cared for at an institution than at home, the question then comes: To what extent shall we ask State aid, and how shall this State aid be administered?

The best plan, probably, is to place upon a county or a group of counties the responsibility of handling a local institution, a certain standard having been provided governing the construction, equipment, and maintenance of such institutions. State aid should be furnished to these local institutions only on condition that they conform to the required standard. The basis of expense may well be one-half by the county and one-half by the State.

The patients of this group of advanced cases, as already stated, in a large percentage of cases do not recover, should therefore not be housed too far distant from their homes.

It would seem as though there was as strong an argument for State aid in the handling of

institutions for the care of communicable diseases, where the intent is to protect the people in general from infection, as for furnishing educational facilities to children. The one looks to the protection of life, the other to fitting people to live. It is useless to spend enormous sums in the education of children in fitting them for gaining a livelihood if we do not protect them from infection, especially from tuberculosis. What is an education worth to the individual that becomes ill and dies during school life or soon after having secured an education, as a result of an infection from tuberculosis?

It may be worthy of note at this point that in some states where tuberculosis is recognized as a communicable disease requiring treatment as such, if there is no sanatorium provided, the expense falls primarily upon the health district (village, city, township, or county, as the case may be), and that in some instances these health districts may recover half of the expense from the county if the individual cared for is not able to bear the expense.

In these same States with State aid for the county sanatoria, the burden of expense for those who are not able to pay is borne jointly by the county and the State. The county, therefore, is under obligation to carry its half of the expense in either case. Without a county sanatorium the burden falls upon the smaller unit and the county. With the sanatorium the burden falls upon the county and the State, the smaller unit being relieved of its immediate responsibility. It seems that the latter method is far the better one. The burden is considerable upon a township or small village to care for a single tuberculous patient for a considerable length of time, while the general tax required upon the county and the State to provide for these institutions is negligible.

In conclusion, let me submit the following problems:

What is the purpose of the institution for advanced cases of tuberculosis? Is it for the protection of others from infection, or is it simply a means in the treatment of these patients? If the first, then we have a definite thing with which to go to the State Legislatures, and should ask for State aid, as outlined in my paper, for we are then dealing with a community problem. If the second, then the Legislature has nothing to do with this matter, for it becomes purely a question of the care of the individual.

# THE JOURNAL-LANCET

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## THE PSYCHOLOGY OF ELECTIONS

The recent presidential campaign, with its unexpected outcome and its many surprising changes, is really a study in psychology. No one seems to be able to account for the results in the election; but it seems quite evident that most of the people did their own thinking, and voted as they thought best. They have evidently considered the subject from all points of view; and, although the campaign managers have endeavored to explain the defeat of the Republican candidate for the presidency in various ways, they are about as much at sea as are the rest of the people.

Both candidates were men of high standing, and each endeavored, in his own way, to advance the cause of his own party. The man in the presidential chair had an advantage over his adversary. He was on the ground, in the work, and familiar with the details; and, judging from the fact that he received the largest number of votes ever cast for any president, he must have had a very close place in the hearts of the people. He was elected, not on account of keeping the country out of war, not on account of his attitude and his participation in the Mexican quarrel, but evidently on account of the fact that he had a line of policies which he had urged before

Congress and pushed through, thereby accomplishing something that had been talked of, but never acted upon.

If we look at a presidential campaign from a purely psychological point of view, it shows quite clearly that an important issue must be the prime factor in the campaigner's course. Unfortunately, the Republican party had practically no issue upon which they could build a substantial structure. Then, too, it is unmistakably a fact that personal vilification, abuse, and widespread criticism are boomerangs. The people somehow resent too much interference with either a man or his reforms. They do not like to see some one man picked out and personally abused for something that he is not responsible for, or perhaps something which he is unable to accomplish, and they also know that he may have some special information that leads him in the direction that he takes. The result is that the people are inclined to sympathize with the supposedly under man. It is notoriously true that in common life, in ordinary and daily experience, very few people sympathize with the man who has a stranglehold upon his fellow-man. The people are inclined to fear that perhaps the fellow-man deserves some credit; and, if they can assist him in any way that is not inconsistent with their conscience, they do so very cheerfully.

An interesting psychological point of view is the way in which the crowd goes. The crowd is not a man, but a mass of men. Whether they are level-headed or hot-headed, they are stampeded like a herd of cattle and are quite ready, with the enthusiasm of election time, to suddenly change their point of view. It is extremely interesting to watch the antics, the noise, and the crowd made up of nine hundred thousand New Yorkers on election night, as did the writer, as the early returns were received. And yet probably out of that enormous number there were a lot of level-headed men, who should not have been carried away by the impulse of the crowd. They should have deliberated and waited until some real facts were known. Instead of that, however, they jumped at a conclusion, and this surging mass of humanity, crowding sidewalks and streets, blocking traffic with automobiles and all sorts of conveyances, was impelled to join with the rest in one grand hurrah, which was premature and explosive. This did not prevail alone in New York, but was manifest in a great breadth of the country. But, if the average man, in the average crowd, would stop and consider that it was abso-

lutely impossible to receive election returns two hours after the polls closed in all parts of the country (for instance, the polls close in New York at five o'clock, and, owing to the difference in time, they close in California at nine o'clock), he would realize that no reliable returns could be forthcoming in such a brief period. Yet the crowd accepted the opening statements of the over-confident parties, and then humiliated themselves in the dust the second day thereafter. They were compelled to change their views, because the country was so close in its expressions of political preference.

It is further interesting to note that the prominent newspapers took exactly the same attitude as did the willing crowds. They joined in the hurrah, they published all sorts of premature statements, and even went so far as to suggest members for the incoming president's cabinet, all of which had to be reversed within twenty-four hours; and it is to their credit to say that most of them did it very openly, honestly, and frankly, admitting their early mistakes, and endeavoring to put the best face upon the problem.

If crowds are led into such devious by-paths, so are small groups of men; and this may occur when five or six are gathered together discussing some project, or problem, or subject in which they all have apparently one point of view; and not uncommonly they see things only from that point of view, refusing to entertain the opposite side. We are all too apt to be swayed by our impulses, led away by our all-too-easy moving emotions, and by our hope that our opinions will prevail. Time and again have these verdicts been reached, only to be set aside when some sudden jar has brought us to our senses, and we are able to see both sides of the question. Medical men are the same as the crowds. They are commonly led into expressions of opinions based upon insufficient clinical or research evidence, and they rush along madly accepting brilliant records when a pause and a little thinking would stop them from accepting such records that they later find to be their own individual hopes.

In all probability the country will never see such a demonstration as it saw early in November, nor will the widespread effects of the election fade out of the minds of the people for a decade. Perhaps these emotional disorders are due to world-wide impressions, or are more or less influenced by great conflicts which really disturb the human barometer, and which create an atmosphere of uncertainty, doubt, or expectation.

The highest tribunal in the country, the United States Supreme Court, is supposed to be composed of a body of sane, sound-minded men, who deliberate carefully, who consult, one with the other, until a final conclusion is reached, and that conclusion is final. Why should not such a course prevail among the medical men considering matters of even greater importance than anything that can come before the Supreme Court? We may sometimes pause to ask, Are we human like the men in the street on election night or are we wise and judicious like the men constituting the greatest tribunal on earth?

#### THE LANCET-CLINIC OF CINCINNATI SUSPENDS PUBLICATION

The oldest weekly medical journal in America, and one that has maintained a very high, uniform standard of excellence, has suspended publication. *The Lancet-Clinic*, of Cincinnati, Ohio, was established in 1862, and because it published, from its first issue, much of the best medical literature produced in America, it obtained a wide circulation in both the North and the South.

The loss to the profession and to the public caused by the failure of this admirable journal, is to be measured only by the value placed upon high-grade medical literature. Moreover, the loss is a peculiar one, inasmuch as the South furnished a special field for such a journal. With many of the most brilliant men in the medical profession born, reared, and educated, academically and professionally, in the South, a very large percentage of physicians in most of the Southern states have been graduates of the low-grade medical schools or of no schools. To such men *The Lancet-Clinic*, by its weekly visits, was an educational power of inestimable value; and its suspension in these days of prosperity, in both the South and the North, has a lesson that all medical men may well stop to consider.

But let us turn aside for a moment to extend our sincere condolences to all the living men, past and present, who have sacrificed their time and talent to make *The Lancet-Clinic* what it was. Its editor-in-chief, Dr. Martin H. Fischer, Professor of Physiology in the University of Cincinnati, is a medical man of national reputation. Our readers will remember that he delivered the Oration in Medicine before the Minnesota State Medical Association in 1915, which was published in our issue of July 1, 1916. He possesses those qualities essential and indispensable in an editor-in-chief who undertakes simply the



general oversight and direction of a medical journal, giving to it, of course, only a small amount of his time and thought.

Dr. Fischer had an exceptional associate and managing editor in Dr. A. G. Kreider, formerly editor of the *Cincinnati Medical News*, recently merged with *The Lancet-Clinic*. Dr. Kreider brought to the paper journalistic ability, enthusiasm, and hard work.

But why did *The Lancet-Clinic* suspend publication? We answer, in part, by repeating the causes given in the press announcement, which is the only information of the failure now at hand. It failed because of the loss of advertising patronage due to the recent adoption of the standards of the American Medical Association, the high cost of print paper, and the loss of subscribers caused by the increase of state association journals.

We further answer from an experience and an observation extending over more years than we care to number. Our answer is, it failed because the medical men too often overlook the good for the inferior, and therefore will not pay the price of producing the best; and, more important, *The Lancet-Clinic* was published in a city (Cincinnati) which is no longer a distinctively medical and commercial center for a territory large enough to support a paper of high character and large cost of production sold at a low subscription price.

The leaders of the medical profession should well ponder these points—these indisputable facts when they undertake the publication of a medical journal or dictate the conditions under which one shall be published to gain their support. The mere publication of a journal is not necessarily creditable or helpful to the physicians of a state; it may be both discreditable and harmful. And yet associations in states with only a few hundred physicians undertake such publications. The result, except in rare instances, is pitiful, because such publications discredit the whole profession of the state. There are not a few such now, and more will result from the ambitions of a few men in control of state associations, but without experience and without the capacity to learn from observation.

#### TO COUNTY AND DISTRICT SECRETARIES

Dr. McDavitt, Secretary of the Minnesota State Medical Association, requests us to notify the secretaries of the component medical socie-

ties and the members of such societies that the roster of 1916 automatically ceases on December 31, and therefore all members should pay their dues before that date in order that the roster of each component society may reach the State Secretary's office promptly after January 1, 1917.

This advice is equally pertinent in North and South Dakota, and in every state with a fiscal year ending December 31.

In Minnesota the membership has been larger this year than ever before, and the Medical Defense has been very successful, though somewhat expensive. Only two verdicts were rendered against members of the Association, and it is confidently believed that these verdicts will be set aside by the Supreme Court.

Dr. McDavitt also sends us the following letter, with names omitted, received from a firm of physicians who have demonstrated the value of the Association's defense:

Dr. Thomas McDavitt,

October 24, 1916.

St. Paul, Minn.

My dear Doctor: The malpractice suit entered by ..... against Doctors..... came to trial yesterday and a verdict was rendered in our favor today, completely vindicating us in every way and forcing the plaintiff, ..... to pay his bill in full with 6 per cent interest from the date of operation, some sixteen months ago.

We now know that the kind of protection which the State Medical Association furnishes its members is real protection, and not mere talk.

Up to this time we have also carried a medical defense contract because we felt that maybe in the end we would not get the right kind of defense from the State Association, but from this experience we feel that any honest practitioner who is a member of the State Association and has its backing, need not worry, even though he does not have a defense contract to fall back upon. In twenty-three years of practice we have never had a suit, nor been threatened with one before; and you may imagine how relieved we feel after having won our case.

We wish to thank the State Medical Association and their attorneys for this splendid service rendered us from start to finish.

We beg to remain,

Fraternally yours,

(Signed) ..... M. D.

(Signed) ..... M. D.

Unless your dues are paid before December 31, your defense rights cease.

#### HEALTH AND HAPPINESS WEEK

The Health and Happiness Week, to be observed in Minneapolis, from December 1 to 7, is unique in many ways. As far as is known, it is the first movement in which all the organizations in a great city have been found eager to

analgamate their efforts to arouse a public interest in the discussion of health problems.

Every civic and social service organization in Minneapolis has subscribed to Health and Happiness Week, and is working hard in a personal way to make it a success. The opening feature of the week is to be a gigantic parade, Friday afternoon, December 1, in which nearly two thousand persons are expected to participate in different ways. The remainder of the week will be given to lectures on health and happiness subjects by specialists, and to a big exhibit at the Pence Auto Show rooms and the Walker residence and art galleries.

The City Hospital has planned a very unique and valuable exhibit. It will occupy nearly six hundred square feet of floor space at the Pence Auto Show rooms. It will demonstrate in a striking way the emergency hospital service, and carry a patient through the hospital from the time of illness or accident to the time of discharge. Photos are to be shown illustrating different interior views, and a motion-picture film of the work of the hospital has been made specially for the purpose.

Dr. W. A. Evans, former Public Health Commissioner of Chicago; Dr. Charles E. Barker, physical caretaker of Mr. Taft when he was president; Dr. C. H. Oakman, a noted dental surgeon from Detroit; Dr. H. R. Gaylord, a New York cancer specialist; and several other noted national figures have been obtained for the week. The biggest feature of the program will be a mass meeting at the Auditorium, Wednesday evening, December 6, at which several noted physicians will speak. The meeting is to be held under the auspices of the Hennepin County Medical Society.

Free motion-picture shows are to be given each afternoon and evening of the week of December 4 to 9, inclusive, at the Pence Auditorium, at which nearly a score of films of a public-health and disease-prevention nature will be exhibited. Addresses also will be given.

## MISCELLANY

### WHAT IS THE TRUTH?

The St. Paul Dispatch, under date of October 28, printed the following:

REPORT ON SURVEY OF HEALTH BUREAU IS FOUND AT LAST

The mystery surrounding the whereabouts of Surgeon George B. Young's report on his survey of the St. Paul

health department was solved today when it was discovered the document, for which city officials have been waiting for months, is in the custody of George W. Rathjens, chairman of the Commercial Club's committee on social service.

Dr. H. M. Bracken, secretary of the State Board of Health, to whom the report was sent some time ago by the United States Bureau of Public Health, for transmittal to Mayor Irvin, ignored his instructions from Washington and turned it over to the Commercial Club committee.

He failed even to notify Mayor Irvin of its receipt, and only yesterday the mayor received a telephone call from Mr. Rathjens, asking him to set a date for a conference with Commercial Club representatives with relation to the report.

Today a letter reached Mayor Irvin from the United States Bureau of Health, replying to a letter of inquiry sent to Washington after Dr. Young's visit to St. Paul two weeks ago.

The letter was to the effect that Surgeon General Rupert Blue had forwarded the report to Dr. Bracken "for transmittal to the mayor of St. Paul."

Mr. Irvin called Dr. Bracken's office today for an explanation, but was unable to talk to the secretary of the board, who is out of the city. An assistant admitted the report had been given to the Commercial Club's committee immediately on its receipt "because the committee had asked for it."

"I was told by Dr. Bracken's assistant the Commercial Club representatives were warned against making the report public until I should see it," the mayor said, "but I fail to understand why they should have been given the document by the state officials at all, when the latter were instructed by the surgeon general to transmit it to me."

"I was unable to arrange a meeting with Mr. Rathjens for today, and so informed him when he telephoned me. I do not see how an intelligent conference could be held until I see the report, anyway, and I will ask Mr. Rathjens to send it to me today, so I may examine it tomorrow."

"I have no objection to discussing it with the Commercial Club's committee after I have read the report, as that body was instrumental in bringing about the survey. However, it seems the regular course for Dr. Bracken would have been to transmit the report to me in accordance with his instructions from Washington, and permit me to arrange for conferences as I should see fit."

"The Commercial Club is not the only body interested in improvement of the St. Paul Health Department. Commissioner McCall and myself obtained the services of G. A. Gesell, representing the Association of Commerce, to make an investigation of conditions in the office, and suggest a system of records and reports."

"This work is in progress, and has revealed what we already know, the absence of proper methods of reporting, and other laxity in the office."

"There has been no means of telling what the health officers were doing, and the department has been conducted with a general lack of business system in many particulars."

"Mr. Pierson received a letter from Federal officers asking that the report be turned over to St. Paul au-

thorities. He did not consult city authorities, but gave it to Mr. Rathjens of the Commercial Club committee."

The facts of the case are as follows:

Last spring the St. Paul Commercial Club, through its Social Service Committee, made a request of the United States Public Health Service, through the State Board of Health, asking that an officer be detailed to make a survey of public health administration of St. Paul. This request was sent to Surgeon General Blue by the State Board of Health, and Surgeon G. B. Young was detailed to make the survey. The State Board of Health took no part in the survey and was not asked to assist Dr. Young in any way. It had no interest in Dr. Young's report other than to receive it from the Surgeon General and transmit it through the proper channels to the city authorities.

On October 27 Dr. Young's report was received at the office of the State Board of Health about noon. I was at Owatonna on business on that date. Mr. Pierson, the Assistant Secretary, telephoned me asking what should be done with the report. This message I received about three o'clock in the afternoon. I requested Mr. Pierson to get in touch with the chairman of the Social Service Committee of the Commercial Club at once, and to go with him personally to deliver this report to the mayor. My reason for doing this was that the request came through this committee of the Commercial Club, and I thought it would be rather discourteous for me to deliver the report directly to the mayor, ignoring the committee at whose request the survey was made.

Mr. Pierson telephoned Mr. Rathjens, Chairman of the Social Service Committee, at once. Mr. Rathjens' place of business is some distance from the mayor's office—in fact, in West St. Paul, and not near the car lines.

We were advised that as it was late in the afternoon, Mr. Rathjens tried to make an appointment Saturday morning with the mayor, but this was not a convenient hour for the mayor. On Friday, the 27th, an appointment was made by the mayor for Mr. Rathjens and Mr. Pierson to meet him Monday morning. Saturday morning, however, the mayor thought that he would like to have the report on that date if possible, and then made an appointment with Mr. Rathjens and Mr. Pierson for 5 p. m. of that day.

As a matter of fact, the report was turned over to the mayor Saturday evening by Dr. Maloney, a member of the Social Service Committee of the Commercial Club, it not having been pos-

sible for the mayor to keep his appointment with Mr. Rathjens and Mr. Pierson.

I was not in my office either Friday or Saturday, October 27 and 28, as business took me to Owatonna for Friday, and from there I went to Chicago.

It would appear from the above statement that this office made every effort possible to get this report into the mayor's hands as quickly as possible after its receipt in this office. I had no opportunity to read this report, as it was turned over to the mayor before my return. Mr. Pierson felt that the papers should look to the mayor for the opportunity to review this report, and so advised the reporters and editors.

Is there a possibility that in the near future one will have to say of certain news items, "If you see them in the *Dispatch* they are not so?"

H. M. BRACKEN, M. D.

Executive Officer of the Minnesota  
State Board of Health.

St. Paul, Minnesota, October 31, 1916.

## REPORTS OF SOCIETIES

### MINNESOTA ACADEMY OF MEDICINE

The Academy met on October 11, at the Town and Country Club, with the president, Dr. Colvin, in the chair, with 48 members and four visitors present.

Dr. Law made the following report on a case of transfusion that he recently made:

Transfusion was done in three cases which may be of interest, two especially, in new-born children, one in a child of three months, and the other of three days. The first was for the relief of extreme anemia, secondary to a streptococcic infection of the heart-valves. This resulted in failure, for the blood given by the father was promptly hemolyzed, and the child died within one month. The second patient was a three-day old babe, who, as the result of "melena neonatorum," was extremely anemic, having a hemoglobin of 25 per cent. In the first instance, the three-months old child's hemoglobin was brought from 18 per cent to 55 per cent by the administration of 150 c.c. of blood, and the child with melena had his hemoglobin brought from 20 per cent to 88 per cent by the administration of 150 c.c. of blood, which also stopped the bleeding, and the child was discharged cured.

The outstanding point of interest in each of these transfusions of infants was the technical difficulties of the operation. The main difficulties encountered in transfusions of infants, is to find an available vein large enough to be utilized. The only one is the femoral vein. When we stop to consider that the thighs of these infants measured three inches or less, the diffi-



culty is apparent. Observations made upon both children showed the femoral vein, instead of lying along the side of the artery, lay directly behind it. This necessitated the mobilization of the femoral artery for one and one-half inches, so that the vein could be mobilized and brought out so that it could be utilized. We found that these veins were no larger than broom-straws. We could not get a cannula small enough to enter them. Fortunately, the Vincent apparatus is provided with a ground shoulder on the projecting glass tit, which takes a needle; and with this needle we were able to get into the vein.

Another transfusion, done yesterday, was on a little girl of eight, referred to the surgical department from the pediatric service of the University Hospital. This girl had been brought in as an emergency case with a persistent epistaxis. She was more nearly exsanguinated than any patient we had ever seen, her hemoglobin being only 8 per cent; but, in spite of this, she was still conscious and was still bleeding, although her nose had been packed. There was no time to make an elaborate blood analysis in this child, so the coagulation time was not taken to determine whether or not the child was a hemophiliac. The mother's blood was found to match the child's, falling into the same grouping, so a rapid transfusion was done. The little girl was given 300 c.c. of blood, which brought her hemoglobin up to 25 per cent and stopped her bleeding. From an experience with and analysis of all the different methods of transfusion, except the use of the sodium citrate, we have concluded that the simplest, the most practical, and the easiest of applications, is the co-called "Vincent," and, certainly, this is the only one which lends itself to the transfusion in new-born children.

Dr. Geist reported a fracture of the scaphoid bone of the wrist:

R. B. C., male, aged thirty-six, injured April 24, 1916. He was "kicked" by an automobile while cranking the car. There were immediate swelling of the wrist, and very much ecchymosis. No attempt at treatment was made for the first four weeks after the accident. Following this, board splints were used for about three months. On September 12, 1916, there was absolute inability to use the wrist. The patient complained of considerable numbness in the entire index and middle fingers. The wrist was held stiff in the extended position, and any attempt at active or passive motion was extremely painful, the pain being referred to the above named fingers. On examination, there existed a slight amount of motion of the fingers, both actively and passively. There was extreme tenderness over the radial side of the wrist joint, with some thickening in this region. An *x*-ray shows a transverse fracture of the scaphoid of the right wrist with scarcely any displacement. On account of the disability and pain, together with the *x*-rays, diagnosis of an ununited fracture of the scaphoid was made. At operation, on September 13, 1916, an incision was made on the dorsum of the wrist on the radial side (over the "snuff-box"). The scaphoid bone was easily removed in two parts, no attempt at union having taken place. There existed a slight amount of fibrous tissue over the fractured ends of the bones, but much mobility between the fragments. It is important to recognize these not very infrequent fractures in spite of the fact that a superficial examina-

tion of the *x*-ray plate may be misleading. The *x*-ray picture must be carefully studied and correctly interpreted and the symptomology properly taken account of.

The formal paper of the evening was read by Dr. L. B. Wilson, of Rochester, his subject being "An Analysis of the Scholastic Attainments of Members of the Limited Medical Societies of the United States." There was no discussion.

The thesis of the evening was presented by Dr. E. M. Hammes, of St. Paul, its subject being "The Comparative Value of the Wassermann, the Colloidal Gold, and Other Spinal Fluid Tests; a Study of 203 Cases." Drs. Hamilton, Sneve, Jones, and Kilbourn took part in the discussion that followed.

FRED E. LEAVITT, M. D., Secretary.

## NEWS ITEMS

Dr. H. E. Cary, of Jenkins, has moved to Minneapolis.

Dr. J. A. Regner has moved from Cannon Falls to Wahkon.

Dr. H. W. Smith, of Crookston, has moved to San Antonio, Texas.

Dr. Thos. Moeller has moved from Perth, N. D., to Devils Lake, N. D.

Dr. J. J. Stratte has moved from Badger, where he has been practicing for a year, to Clarkfield.

Dr. E. R. Jellison, formerly of Plato, has purchased a practice in New Auburn and will locate there soon.

St. Raphael's Hospital of St. Cloud graduated a class of eight nurses from its training-school last month.

Dr. Fred P. Moerch, of Minneapolis, has gone to New York to spend a month in the psychiatric clinics of the city.

The Northwestern Hospital of Minneapolis graduated sixteen nurses from its training-school for nurses this week.

Dr. J. A. Schultz has moved from Emmons to Albert Lea, and has become associated with Dr. B. A. Kamp, of that city.

Carrington's (N. D.) new hospital was opened last month with a public reception. The city is proud of its new hospital.

Dr. V. C. Winston, of Keystone, S. D., died in Rapid City, S. D., on November 10 after an operation for appendicitis.

Dr. A. W. Coulter, of Sharon, N. D., has

joined a Canadian army medical corps, and has gone to Europe for service.

The contract for the erection of the Wadena-Todd County Sanatorium at St. Cloud has been let, and work will be started soon.

Dr. Gordon L. Berry, field secretary of the national committee on the prevention of blindness in children, will lecture in Minnesota this winter.

More fresh-air school-rooms are to be opened in the Minneapolis schools this winter because of the unqualified success of the trial of such rooms in the past.

The McKennan Hospital, of Sioux Falls, S. D., recently retired the final \$25,000 bond issue outstanding on the hospital building since its erection in 1912.

Dr. A. P. Woodward, of Northfield, died at his home November 6 at the age of 64. The cause of death was an acute attack of rheumatism of the heart.

The Jackson County Society held its annual meeting at Jackson last month. Dr. J. J. Murphy, of the State Public Health Association, read a paper on poliomyelitis.

Dr. J. A. Seapy, of Geddes, S. D., died on October 11 at Rochester, following an operation. Dr. Seapy was graduated from Bennett Medical College of Chicago in 1900.

A new physicians' and surgeons' building, to be known as the La Salle Building, is in process of construction at the corner of Marquette Ave. and Seventh St., Minneapolis.

The commission in search of ideas for the new Charles T. Miller Memorial Hospital to be built in St. Paul has returned after visiting twenty great hospitals in the largest cities of the country.

The physician who misses the meeting of the Southern Minnesota Association at Mankato on December 4 and 5, will miss a rare treat. The list of papers to be read was given in our last issue.

Dr. W. A. Jones, editor of THE JOURNAL-LANCET, was the guest of the Inter-Urban Academy of Medicine at its last meeting, held at Superior, Wis., and gave an address on "Borderline Cases."

The Red Cross Christmas Seal sale in the Northwest this year should be the largest in the history of such sales, and all physicians should give it a boost both by commending it and by contributing to it.

Dr. A. E. Benjamin and Dr. R. E. Farr will

present papers at the next meeting of the Hennepin County Society, the former on "Prolapse of the Uterus" and the latter on "Prostatectomy under Local Anesthesia."

The annual meeting of the Black Hills (S. D.) Society was held last month at Lead, when the following officers were elected: President, Dr. F. W. Minty, Rapid City; vice-president, Dr. J. L. Chassell, Belle Fourche; secretary-treasurer, Dr. F. A. Richards, Whitewood.

In a circular letter issued from the Minnesota State Board of Health it is stated that two facts in regard to poliomyelitis have been definitely ascertained: the disease is exclusively a human disease, and it is spread by personal contact, although other causes may contribute to its spread.

The Attorney-General of Minnesota considers the regulation of the State Board of Health for the compulsory prophylactic treatment of the eyes of the new-born a reasonable and proper regulation. At a public hearing upon the subject, a representative of the Christian Scientists opposed the measure.

Minneapolis has reduced, in a generation, its typhoid death-rate from 75 per 100,000 residents to 7. In 1910, a year before a filtration plant was installed, the rate was 57. It may go below 7 this year. With a better water-supply in the past, St. Paul never approached the high death-rate long endured in Minneapolis.

The Medical School of the University of Minnesota will ask the legislature for \$200,000 for a contagious hospital to meet the imperative need of the student body and of the medical classes. A contagious case or two at the University or the Farm School is a serious matter, and such a hospital building should have been built long ago.

Official announcement has been made of the establishment by the University of Chicago of a great medical school to equal the best in Europe. Its endowment will be ten million dollars; and it will be a great research and teaching school. The Rush Medical School will be superseded by the new school. The school will open within two years.

Health week, December 1-8, will be celebrated by the largest number of effective health talks ever prepared for laymen. Among the distinguished speakers in Minnesota will be Dr. W. A. Evans and Dr. Harvey W. Wiley. Dr. Wiley made a national reputation in his work as a U. S. Government official in opposition to impure foods. Dr. Evans has likewise made a national

reputation as the efficient health commissioner of Chicago, and as the editor of a department of health in the *Chicago Tribune* and other dailies, including the *Minneapolis Journal*.

The Stearns-Benton County Society met at St. Cloud on November 16, and heard papers on the following subjects: "Concerning Röntgen Therapy in Deep-seated Lesions," by Dr. Frank Bissell, Minneapolis; and "Diagnosis of Gastro-duodenal Lesions, with Lantern Slide Demonstrations," by Dr. J. M. Lajoie, Minneapolis. A thorough discussion followed the reading of the two papers; and the demonstration by lantern slides brought out clearly the interesting and valuable points. A rising vote of thanks was extended Dr. Bissell and Dr. Lajoie. Dr. Arthur W. Eckstein, was re-instated, and Dr. W. L. Freeman, of Foley, was elected a member of the Society.

#### OFFICE ASSISTANT DESIRES POSITION

A fine stenographer, with experience in a physician's office and as nurse and laboratory assistant, desires position. Can give good references. Address 425, care of this office.

#### INSURANCE STOCK FOR SALE

For sale, at a liberal discount, ten shares of capital stock of Midland Insurance Company, of St. Paul, Minn. Address G. S. W., Box 117, Warren, Minn.

#### APPARATUS FOR SALE

A 12-inch x-ray coil, in first-class condition, with rheostat, and electrolytic interrupter and Scheidel-Western Rectifier if desired. Price, \$75.00 cash. Address 413, care of this office.

#### OFFICE FOR RENT

I wish to rent my fully equipped office in an outlying district of Minneapolis. I have a down-town office, and would need the other but three nights a week. Rent cheap. Address 426, care of this office.

#### LOCUM TENENS WANTED

A man to hold my practice from December 10th to January 3. I will pay \$6.00 a day and expenses, and railroad fare one way. Write all particulars in first letter. Address 429, care of this office.

#### OFFICE FOR RENT

In a modern fireproof building located at Hennepin and Franklin Avenues, Minneapolis. Offices have an anteroom adjoining a dentist's office. Inquire at Holman-Gerdes Co., 1936 Hennepin Ave., Minneapolis.

#### ASSISTANTSHIP OR PARTNERSHIP WANTED

By graduate of a Class A school, age 34, married, no children. Five years surgical training. Full surgical equipment. Special training in laboratory work. Licensed in Minnesota. Address 423, care of this office.

#### X-RAY OUTFIT FOR SALE

Because of a change of location I desire to sell my Scheidel-Western Special x-ray coil and high-frequency outfit; also a McIntosh Wall Plate and a Leucodescent Lamp. These may be seen in Minneapolis. Address 424, care of this office.

#### PRACTICE FOR SALE

A good practice in a town of 1,200, mixed population, forty miles from Minneapolis; well-equipped office; all modern conveniences. Practice established 20 years. Collections A-1; good mileage; residence, optional. Address 428, care of this office.

#### LOCUM TENENCY WANTED

By 1914 graduate; eighteen months' internship at City and County Hospital, St. Paul. Can give best of references from men I have worked for. Can begin work at once for any length of time; prefer small town with little or no competition. Address 433, care of this office.

#### POSITION WANTED BY SECRETARY-STENOGRAPHER

A refined, capable young woman, having had six years' experience in the office of a Minneapolis physician, desires to become permanently associated as stenographer-secretary with a physician in Minneapolis having a large practice. Initial salary desired, \$75. Address 427, care of this office.

#### PART OF MINNEAPOLIS OFFICE FOR RENT

Wanted—a dentist or physician to share office on fourth floor of the Physicians & Surgeons' Building, Minneapolis. Rent, \$25, with share office-attendant and telephone. Reception-room is already furnished. Can refer business enough to make it an object for a dentist. Space arranged to suit tenant. Address 421, care of this office.

#### PHYSICIAN WANTED.

A competent physician and surgeon is wanted to take charge of a sanitarium (incorporated) in a Central Minnesota town of 400, located in a rich farming community and a summer resort. One who is not afraid to work and wants to grow with the institution. German preferred. Address 420, care of this office.

#### A GOOD CALIFORNIA PRACTICE TO EXCHANGE FOR ONE IN THE MIDDLE WEST

An eye, ear, nose, and throat specialist, with a \$5,000 practice in California would like to exchange locations with a man doing a like business in the same line in one of the smaller cities of the Middle West, Minnesota preferred. Family reasons compel me to make a change. Address 432, care of this office.

#### DOCTOR

Doctor: If you want practical postgraduate work during the fine season in the delightful city, write for particulars. Thirtieth annual session opens September 25, 1916, and closes June 9, 1917. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.



REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Fueral Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	5,192	9															
Alexandria	2,681	3,001	6	1											2	1		
Anoka	3,769	4,372	5			1												1
Austin	5,474	6,960	6		1											2		
Barnesville	1,324	1,353	0															
Bemidji	2,183	5,099	7												2			1
Benson	1,525	1,677	2													1		
Blue Earth	2,900	2,619	2															
Brainerd	7,524	8,526	13	1											4			
Breckenridge	1,282	1,840	1															
Canby	1,100	1,528	1		1													1
Cannon Falls	1,239	1,385	0															
Chaska	2,165	2,050	2												1			1
Chatfield	1,426	1,226	0															
Cloquet	3,074	7,031	5															
Crookston	5,359	7,559	8								1				1			1
Dawson	962	1,318	2			1												
Detroit	2,060	2,807	5		1													
Duluth	52,968	78,466	32	2	2	2	0	0	0	0	0	0	0	0	18	3	0	7
East Grand Forks	2,077	2,533	1															
Ely	3,572	3,572	6												1	2		
Eveleth	2,752	7,036	5												1			
Fairmont	3,440	2,958	3	1											1			
Faribault	7,868	9,001	7	1											1			
Fergus Falls	6,072	6,887	4		1											1		
Glencoe	1,788	1,788	1															
Glenwood	1,116	2,161	5													2		
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	1													1		
Hutchinson	2,495	2,368	3													1		1
International Falls		1,487	2															
Jordan	1,270	1,151	0															
Lake City	3,142	3,142	10													2		
Le Sueur	1,937	1,755	1															
Little Falls	5,774	6,078	5	1														
Luverne	2,223	2,540	2													3		
Madison	1,336	1,811	1															
Mankato	10,559	10,365	8												2			2
Marshall	2,088	2,152	5															
Melrose	2,591	2,591	1													1		
Minneapolis	202,718	301,408	322	23	2	8	5	0	0	0	3	3	0	1	27	29	1	25
Montevideo	2,146	3,056	5												1	1		
Montgomery	979	1,267	1															
Moorhead	3,730	4,840	9	1	1	1								1		3		
Morris	1,934	1,685	2															
New Prague	1,228	1,554	0															
New Ulm	5,403	5,648	9													1		3
Northfield	3,210	3,216	1													1		
Ortonville	1,247	1,774	1															
Owatonna	5,561	5,658	7	2											1	1		
Pipestone	2,536	2,475	4												1			
Red Lake Falls	1,666	1,666	0															
Red Wing	7,525	9,048	8	1												1		1
Redwood Falls	1,661	1,666	0															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	41															1
Rushford	1,100	1,311	1													1		1
St. Charles	1,304	1,159	1															
St. Cloud	8,663	10,600	15		1										5			
St. James	2,102	2,102	1															
St. Paul	163,632	214,744	195	17	4	4	0	0	0	0	1	3	0	2	14	17	0	20
St. Peter	1,430	4,176	1															
Sauk Centre	2,154	2,154	0															
Shakopee	2,046	2,302	3													1		1
Sleepy Eye	2,046	2,247	1															
South St. Paul	2,322	4,510	4												2			1
Staples	1,504	2,558	2															
Stillwater	12,318	10,198	8	1												1		2
Thief River Falls	1,819	3,174	5	1												2		
Tower	1,111	1,111	0															
Tracy	1,911	1,826	1													1		
Two Harbors	3,278	4,990	0															
Virginia	2,962	10,473	10	1		1								1	3			2
Wabasha	2,622	2,622	2												1			
Warren	1,276	1,613	1															
Waseca	3,103	3,054	1															1
Waterville	1,260	1,273	2															
West St. Paul	1,830	2,660	0															
Willmar	3,409	4,135	6	1												1		
Winona	19,714	18,583	16	1	1	1	1					2				1		3
Winthrop	813	1,043	0															
Worthington	2,386	2,385	4	1														

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Fuerepal Septicemia	Accidental Deaths
Adrian	1,258	1,112	1															
Aitkin	1,719	1,633	0															
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	2															
Biwabik		1,696	1															1
Bovey		1,377	*															
Browns Valley	721	1,058	0															
Buffalo	1,040	1,227	1															
Caledonia	1,175	1,372	1												1			
Cass Lake	546	2,011	2														1	1
Chisholm		7,684	2												1			
Coleraine		1,613	1															
Delano	967	1,031	0															
Farmington	733	1,024	1															
Fosston	864	1,055	0															
Frazee	1,000	1,645	2															
Grand Rapids	1,428	2,239	0															
Hibbing	2,481	8,832	6												1			2
Jackson	1,756	1,907	2															
Janesville	1,254	1,173	2	1														
Kenyon	1,202	1,237	1													1		
Lake Crystal	1,215	1,038	0															
Litchfield	2,280	2,333	4	2														
Long Prairie	1,385	1,250	1															
Madelia	1,272	1,273	1															
Milaca	1,204	1,102	3															
Mountain Lake	959	1,081	7												2	2		
Nashwauk		2,080	0															
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	2													1		
Osakis	917	1,013	1															
Park Rapids	1,313	1,850	1					1										
Pelican Rapids	1,033	1,019	0															
Perham	1,182	1,376	3															2
Pine City	993	1,258	1															
Plainview	1,038	1,175	0															
Preston	1,278	1,193	2															1
Princeton	1,319	1,555	1															
St. Louis Park	1,325	1,743	1															
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	2															
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	1															
Spring Valley	1,770	1,817	1															
Wadena	1,520	1,820	2															
Wells	2,017	1,755	2															
West Minneapolis	2,250	3,022	4												2		1	
Wheaton	1,132	1,300	1															
White Bear Lake	1,288	1,505	2									1						
Windom	1,344	1,749	2												1			
Winnebago City	1,816	2,555	1															
Zumbrota	1,119	1,138	2													1		
STATE INSTITUTIONS																		
Anoka, Asylum			2															
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			4			1												
Fergus Falls, Hospital for Insane			8			1											1	
Hastings, Asylum			7	1														
Minneapolis, Soldiers' Home			3															
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			11	1														
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			9	2														
St. Cloud, State Reformatory			0															
Stillwater, State Prison			1	1														
OTHER PARTS OF STATE			655	51	9	20	0	1	1	0	5	16	2	3	45	80	1	60
Total for state			1692	116	25	40	6	2	1	0	10	25	2	8	141	172	3	143

\*No report received. REGISTRAR not doing his duty.

124 stillbirths not included in above totals.

# Most Women Are Chronically Constipated

for all of the obvious reasons, plus those due to anatomic, neurologic, dietetic conditions—and "the procrastination habit."

In connection with other measures, (for INTEROL is what one writer would call a "dietetic accessory") INTEROL so facilitates passage of the intestinal contents that their journey is made easy, and the patient is trained to go to stool regularly.

» Oftentimes, INTEROL proves a valuable adjunct in the treatment of female neurasthenia, which so often results (or is aggravated by) intestinal autotoxemia. Because (1) it reduces the length of time in which the fecal mass (with its toxins) remains in contact with the water-absorbing mucous membrane of the colon; (2) it holds these toxins in suspension; (3) it changes the bacterial surroundings—the "intestinal flora."

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*Hands that are Rough, Cracked and Sore* are restored to their natural softness and comfort by **K-Y Lubricating Jelly**, well rubbed in.



It "works in" quickly, and doesn't soil the linen. You know it as a surgical lubricant; it's "just as good" an emollient.

*Collapsible tubes, druggists, 25c.*

*Samples and literature on request.*

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This is perhaps the most valuable test which we now possess for the differentiation of diseases of the central nervous system. The reaction obtained with this test with the fluids of paretics is absolutely pathognomonic of that condition. It differentiates syphilis from other types of lesions of the central nervous system.

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## Mercurial (Grey) Oil - \$1.50

One of the New and Nonofficial remedies. A valuable adjunct in the treatment of syphilis. Put up in syringes, each syringe containing 10 doses. Credit of 50c upon return of syringe. Pamphlet sent upon request.

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### A NEW PHYSICIANS' AND SURGEONS' BUILDING IN MINNEAPOLIS—THE LA SALLE BUILDING

The announcement (see the full-page illustrated description elsewhere in this issue) that Minneapolis has under way a new building for physicians and surgeons, cannot fail to be of great interest to the profession, especially in view of the fact that its size and its location mean an end, for some years to come, of the decentralization and scattering of the profession which has so long seemed imminent.

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It gives THE JOURNAL-LANCET real pleasure to know that this new building will soon be ready for occupancy, and that will make up for all the disappointing announcements hitherto made about proposed buildings to meet the profession's urgent need.

### THE RIVER PINES SANATORIUM

The institutional work in the treatment of tuberculosis done by such men as Dr. T. H. Hay, the medical director of the River Pines Sanatorium, at Stevens Point, Wis., cannot be commended too highly. Of course, such an institution is a private business enterprise, and so is the practice of medicine; but there are some men who bring to their work a personal devotion and a self-sacrifice in the interest of humanity that mark them as men of distinction, both in the profession and out of it, because their interests in the profession and in humanity are their first interests.

Dr. Hay is a man of that type, and his Sanatorium is the fruit of his life-work.

### THE BATTLE CREEK SANITARIUM

The European war, which has so profoundly affected our industries, has had a considerable influence in increasing the patronage of American health resorts. Many Americans who usually go to foreign spas, have visited home institutions instead. Furthermore, numerous residents of other neutral countries have come to the United States in search of health, who would in other conditions have gone to Carlsbad, Homburg, or the hundred other health headquarters of Europe. This

is particularly true of wealthy residents of Central and South America. In the last year the Battle Creek Sanitarium has had about 200 patients from abroad. The number will probably increase, for in the last three months the institution has had letters of inquiry from prospective visitors residing in the following lands: Cuba, Caiman Islands, Mexico, San Salvador, British Guiana, Venezuela, Colombia, the Argentine, Uruguay, Peru, Honduras, Italy, Switzerland, Russia, England, Germany, India, Japan, the Belgian Congo, and Australia.

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## THE VALUE OF A TEMPORARY CHOLECYSTOSTOMY IN GASTRIC SURGERY\*

By LEWIS L. McARTHUR, M. D.

CHICAGO, ILLINOIS

*Mr. President, and Members of the Minnesota State Medical Society:*

In response to the cordial invitation of your Secretary I rise to address you with a decided feeling of trepidation: first, because Minnesota is today the acknowledged Mecca of surgical progress to which it would be difficult to bring anything new; secondly, because, though firmly persuaded of the value of the recommendations I am about to make, I doubt my ability to present the matter sufficiently convincingly to induce its trial in your daily stomach surgery; thirdly, because there is the feeling that, because on one or two previous occasions I have advocated a similar procedure in other conditions, the conclusion might be drawn that I had an obsession along one particular line of thought. As a matter of fact I have been led to the present position quite casually. Two years ago I chanced to have in my service almost at the same time three consecutive cases of stomach surgery associated with such frank bile-tract disease as to require simultaneous interference. The close sequence of these cases, and their strikingly smooth convalescence, with freedom from those annoying post-operative sequelæ,—vomiting, vicious circle, shock, anuria, etc.,—excited the comment of my assistants, the nurses, and myself. On analyzing the post-operative histories of these cases, it was noted that, in quite our routine way, we had utilized the existing biliary

fistula to meet some of the several indications arising during their convalescence.

For the benefit of those present who may be unfamiliar with my previous suggestions, amplified and improved as they have been by Matas, the Mayos, Clermont, von Haberer, and others, I may digress to the extent of stating that through existing biliary fistulae it has been shown to be easily feasible to introduce, distal to the stomach, into the upper intestinal tract any quantity of any appropriate liquid, often with surprisingly beneficial results. Thus, Dr. W. J. Mayo demonstrated that the post-operative vomiting so often complicating bile-tract surgery could be relieved and the stomach washed out by the instillation of a liter or two of hypotonic salt solution. I have reported several cases of complete anuria incident to a cholemic nephritis, restored to active secretion by the same procedure. Matas, after having saved three such cases complicating common-duct stone with chronic jaundice, became so convinced of the great value of the procedure that, under gas anesthesia later, he purposely created the first therapeutic biliary fistula in the *normal* gall-bladder. A young boy suffered from a complete anuria complicating a recent septic peritonitis. Through this fistula Matas immediately instilled large quantities of hot Vichy Celestins into the duodenum with the prompt return of renal secretion, and a restoration to health after other methods had failed!

Whatever may be the mechanism of shock,

\*Oration in Surgery, delivered at the forty-eighth annual meeting of the Minnesota State Medical Association, at Minneapolis, October 12 and 13, 1916.

most authorities are agreed that there is a diminished amount of blood in the peripheral vessels with a corresponding increase in, engorgement of, or stasis in, the splanchnic system. For the condition to which we are accustomed to apply this term "shock" I have found no procedure to act as promptly, safely, and surely as the utilization of an existing biliary fistula, through which freely to bathe the upper intestinal mucosa with a hot hypotonic, mildly alkaline salt solution containing a physiologic dose of adrenalin. Undoubtedly, the best place for the absorption of fluids in the economy is the upper intestinal tract. The best excitant of normal peristalsis of the same would be some such above-described *hot*, easily assimilable fluid. It is an accepted law of physics that fluids flow through capillaries, for the walls of which they have an affinity. Hence, with such instillation there starts up once more, aided by this peristalsis, the flow through the portal capillaries, the splanchnic stagnation is overcome, and the picture changes most gratifyingly to one of peace and comfort. It might be insisted that the Murphy drip or Kanavel's continuous hypodermoclysis would accomplish the same results. Based on physiological grounds, as well as on personal clinical experience, the assertion can be made that neither the one nor both combined accomplishes quite the same results. In hypodermoclysis, the change in the splanchnic circulation is only secondarily affected; there is no influence on the peristalsis of the small intestine. Colonic instillations by a reversal of a normal physiological process, it is true, are absorbed, enter, and improve the portal circulation, but neither so marked in degree nor so efficient in kind as when the same fluid bathes the jejunal lining.

Whether the claim of Paterson, that the cure of stomach ulcer after the making of a gastrojejunostomy is a chemical one, due to the constant bathing of that ulcer with alkaline bile, is true or not, I cannot agree with him that the stomach is entirely indifferent to the presence of bile; nor have I lost, with growing experience and improvement in my operative technic, my respect for the symptom complex "vicious circle" as applied to ordinary gastro-enterostomies.

Whatever the cause permitting the flooding of the stomach with bile (even the brief anesthesia for some minor work), we know how regularly follows the spontaneous emptying of that stomach by emesis. I am quite prepared to admit that with every gastro-enterostomy some bile en-

ters the stomach, and, further, that the gastro-enterostomized stomach develops in a relatively brief time a tolerance thereto. What I do claim, however, is that in those cases of stomach surgery complicated by the need of biliary fistulæ, whether gastro-enterostomies with or without excision of ulcer, resections of the stomach for malignant disease, or resection of ulcer-bearing areas, I have been able to obviate those serious complications above described by the utilization of such biliary fistulæ.

Hence it was but a step, after such a clinical demonstration of its efficacy, to add to the technic of a gastro-enterostomy, or stomach resection, a *temporary biliary fistula* made in the normal gall-bladder. A double purse-string suture, inverting around a small rubber tube the fundus of the gall-bladder, and bringing out the same tube through the abdominal incision or through an appropriately placed stab-puncture, complicates the stomach surgery but little more than the making of a stab-puncture through the abdominal flank for peritoneal drainage. This has been done for the past two years in a majority of my gastric operations.

One hesitates to speak in numbers of stomach operations when in so close proximity to the Mayo Clinic. The number I have had in the past two years scarcely exceeds twenty in which I have had opportunity to study the data herein described. The results have, however, been so gratifying, when this procedure has been utilized, that I have the temerity here to endorse and recommend its trial.

With such a fistula established, one has so good control of the usual complications of the situation that a veritable sense of security in the convalescence of the patient, with assurance of his comfort, obtains. During the early post-operative hours, the bile being allowed to escape externally, fails to disturb the more or less parietic stomach. Under perfect control, in interrupted or continuous flow, the bile can be made to take its normal internal or its artificial external flow. Complete control of the vicious-circle phenomena can thus be had. Failure of control is proof positive of faulty anastomosis, and equally strong indication for prompt reopening. By this means I have, to my sorrow, realized an angulation of efferent loop to exist, but have successfully corrected it. Through this tube can be introduced, *distal to the stomach*, such fluids as otherwise would have to enter through the mouth, anus, or skin. If they enter by the

mouth, undesired and undesirable stomach peristalsis would be provoked; if by the colon, with some discomfort, and occasional failure of absorption follows; and if by hypodermoclysis, slight influence on peristalsis is effected. If there is need of renal flushing, abundant appropriate fluids can slowly and continuously be introduced to the best of all areas for absorption. If there is need of an alkali to correct an acidosis, here, par excellence, is the point for its absorption. If there is need of food, dextrose solution, 2 per cent, combined or not with any desired liquid peptones, is at command. If there is indication for a cathartic, we can introduce the alkaline cathartic, sodium phosphate, with the greatest benefit. If there is hemorrhage, something can be done to bathe the bleeding areas with those fluids reputed to aid in blood-coagulation,—for example, calcium lactate or chloride, horse serum, adrenalin.

At this point a word of caution suggests itself—caution as to the nature of the solutions one may not use through this tract. The mucosa of the cystic duct and the common duct are normally bathed by an *alkaline* secretion. Failure to bear this in mind by instilling mildly acid solutions,—for example, washing out the gall-bladder with a weak Thiersch solution,—resulted in such edema of the cystic mucosa as to occlude the duct for even a week. Therefore use *neutral* or *alkaline* menstrea. Fluids of high specific gravity, crenate body-cells, and fluids of very low specific gravity cause them to swell, hence an effort nearly to approximate the density of the blood serum or bile in making up the solutions will render their use more facile and efficient. Fluids of slightly lower specific gravity

than normal are to be preferred because most easily absorbed. When the biliary fistula is in the common duct with the tube inserted through it well into the duodenum, after Matas' suggestion, then anything that can be borne by the duodenum can be inserted through it,—for example, milk, soup, cathartics, medicaments,—as he has demonstrated. Before beginning the first instillation it is highly desirable to wash out the gall-bladder, in order to be rid of any clots, thickened mucus, etc., which might interfere with the flow through the cystic duct. The fluid should be allowed to flow by gravity from an elevation of twelve to twenty inches. When working properly, it causes absolutely no discomfort to the patient if the rate of flow is controlled to 5 to 10 drops per second. The amount that can be injected is practically limited only by the capacity of the intestines and blood-vessels of the patient, which, with too excessive hydration, begin to show various edemas, lungs, serous cavities, of hands and feet. This has begun to appear after the injection during a single night of between three and four liters. It did no damage, and speedily disappeared on interrupting the procedure.

In conclusion, I desire to invite your serious consideration of what I am sure you will, at first thought, regard as a complication rather than an improvement to the technic of gastric surgery,—to ask you to try it in your more serious and major surgical interferences with stomach integrity in preference to the simpler gastroenterostomy for chronic pyloric stenosis. Then I am convinced you will find it, if properly used, rather a conservative detail than a surgical insult.

## THE TECHNIC OF NERVE REPAIR IN TRAUMATIC INJURIES\*

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The division of a nerve may be anatomic, in which case the fibers are actually cut; or physiologic, in which case there is no actual destruction of anatomical continuity. Complete division of a nerve results in profound changes both in nerve and in remote structures. As a result of nerve division, we have disturbances of sensation, flaccid paralysis of muscles with subsequent

\*Read at the 48th annual meeting of the Minnesota State Medical Association, at Minneapolis, October 12 and 13, 1916.

fatty and connective tissue changes, Wallerian degeneration of the nerve itself in the distal segment, scar-tissue formation in the end of the proximal segment, and even Nissl degeneration of the ganglion cells of the cord. Bone changes seem to be those of disuse (atrophy), and power of repair is not lost. These changes are progressive, and after a long time become permanent. Therefore, early suture of divided nerves has been advocated, especially by Sherren. The ad-



vocates of early suture warn us to be on watch for nerve injuries in all fracture cases, and in all wounds in the region of important nerves. The statement of Braun, that the musculospiral nerve is involved in eight per cent of all fractures of the humerus, is important to remember.

Immediate nerve repair is possible in clean incised wounds, but in fractures and infected wounds suture cannot be done at once. Rarely do clean, uncomplicated nerve injuries occur. Therefore, one usually has to wait for infection to subside, or for fractures to heal, before begin-

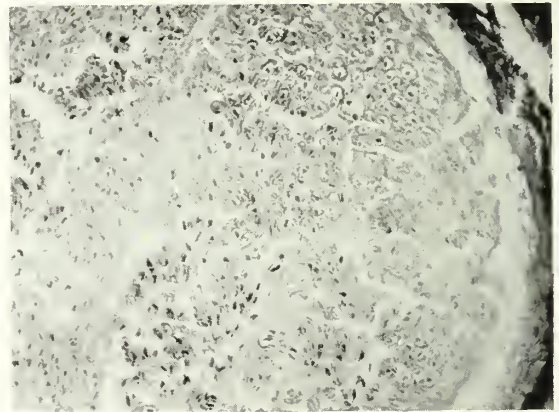
months to determine whether the division is anatomic or physiologic. The signs of both are identical except that the physiologic division recovers spontaneously, while the anatomic does not do so. Some of the more conservative observers (Oppenheim) urge waiting six weeks in clean wounds, and six weeks after healing in infected wounds, before suturing. This is a safe general rule, for an insignificant infection may be lighted up by plastic work.

In every case of nerve injury, treatment should be established at once with the following points in view: first, to place the limb in such a position that the paralyzed muscles will be relaxed and protected from strain. This in the case of the hand is usually accomplished with wire splint and



CASE M. N.—Complete section of cauda equina. Complete motor paralysis for two years. Final restoration of motor function. Picture is shown to emphasize postural and mechanical treatment with massage while waiting regeneration of nerves. Atrophied muscles are nearly all restored to normal condition.

ning any nerve work. An additional argument for delay is found in the fact that it is often impossible to differentiate between physiologic division of a nerve that will undergo spontaneous recovery and anatomic division that requires suture. In the neighborhood of fractures and in gunshot wounds, open inspection of the nerve is not possible; and there are no direct means of telling whether a division is a structural or a functional one except by waiting. Oppenheim, Rothman, Schiffbauer, Thoele, Stopford, and Ferrand advise waiting at least from three to eight



A. E. (791).—Section showing regeneration of nerve in defect remedied by fascial tube. Taken at the end of 132 days. Many of developing axis cylinders have acquired myelin sheath.

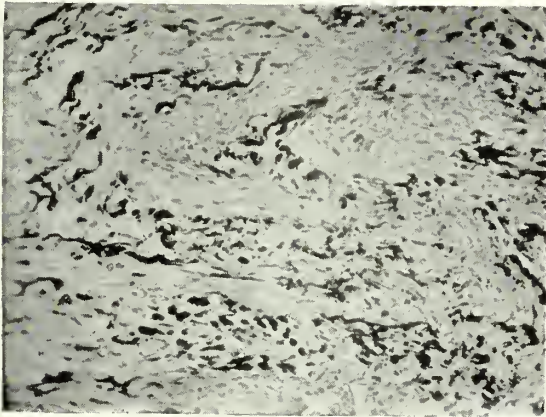
bandage,—the so-called "postural prophylaxis" of Lyle. Too much stress cannot be placed on this point, as failure to prevent unopposed muscle overaction leads to changes in both the normal and the paralyzed muscles, resulting in permanent deformity. The second point in the immediate treatment is to remove any foreign body from the neighborhood of the nerve. In military surgery, nerve injuries are comparatively uncommon. When we consider the great comminution of bone in most gunshot injuries this is surprising, but, in a measure, this is due to careful molding of fractures and removal of bone splinters or foreign bodies from the neighborhood of nerves. The third principle is to begin massage of the damaged muscles as soon as possible. In spite of all that can be done in this line, some atrophy will occur, but surprisingly good results follow when this principle has been observed. Fourth,

take every means to protect anesthetic and devitalized skin from injury.

Without attempting to discuss the diagnosis of nerve lesions in full, I will give the cardinal signs of nerve section. First, epicritic or light touch sense is lost over such an area of skin as is supplied exclusively by the sensory fibers of the cut nerve. This differs from the apparent anatomic distribution of the nerves owing to anastomosis with other nerves. The loss of epicritic sense covers a larger area in nerve injuries than the loss of protopathic. By the loss of protopathic sense is meant the loss of ability to appreciate painful sensations, such as the prick of the pin. The loss of deep sensibility, that is, response to deep pressure, occurs over a variable area, and does not correspond to the last two. Motor dis-

stretching, several methods have been devised. Lobker, and independently Keen, used the radial nerve as transplant in the case of musculospiral. These transplants must be autogenous, and Ingebrigsten has shown that such transplants undergo Wallerian degeneration. They seem to act as a bridge for outgrowth of nerve fibers, and are probably no better than other substances.

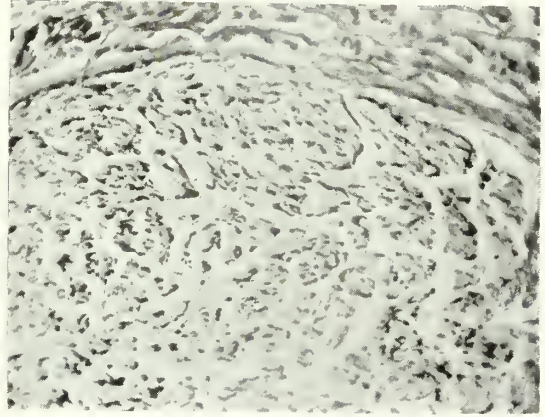
The nerve flap of Letievent, where a graft is split from the nerve to bridge a gap, has been severely criticised by Sherren and by Law. It is well to remember that Letievent never got motor function with his method in a clinical case. The case of MacKenzie, where a gap of ten inches was bridged by a nerve flap, is the most remarkable example of success by this method. Gratzl is using this method at the present time. The



A. E. (761).—Section showing regeneration of nerve in vein-filling defect in nerve. Note clabbed axis cylinders without myelin sheath. This is a longitudinal section. Taken at the end of 52 days.

turbance, as evidenced by flaccid paralysis of all muscles supplied, and reactions of degeneration, occur as a result of nerve section. The so-called trophic changes in the skin sooner or later make their appearance from a loss of innervation.

Many methods of repair for cut nerves have been advocated. The simplest is direct suture. This was first employed by Baudin, in 1836, and subsequently by Nelaton. In direct suture Sherren uses one stitch of fourteen-day chromic, removes all scar tissue bulb from the proximal end of the nerve, cutting the nerve square across with a knife, stretching the nerve to relieve tension, and does not cut the scar tissue from the distal end. Hemorrhage must be controlled, and stitches not multiplied. Fine stitches do more harm than single catgut stitches. When a gap occurs in a nerve that can not be overcome with



A. E. (761).—Transverse section through nerve allowed to regenerate in vein-filling defect in nerve. Shows non-medullated axis cylinders. Taken at the end of 52 days.

method of bridging a gap with catgut or linen, the suture à distance, should be condemned.

In addition to these, we have the bridging of defects in nerves through conducting tubes. Autogenous fascia, bone, celluloid, Cargile membrane, formalized calves' arteries and veins, and autogenous blood-vessels have been used.

As a substitute for nerve suture, in defects of wide extent, such as occur in poliomyelitis, we have the grafting of Letievent and Sick, where the end of a degenerated nerve is brought in contact with the axis cylinders of a normal nerve.

Nerve crossing is but a modification of nerve anastomosis, where a degenerated nerve is brought to a normal nerve. This was first advocated by Langley, and was practiced by Ballance, in switching the spinal accessory to the facial.

That nerve suture is possible is indicated by



Bowlbey's series, published in 1903 in the "American Text-book of Surgery." In this there were 81 cases of primary suture with 32 successful results; and 73 cases of secondary suture with 32 successful results. The results of nerve suture are often clouded in uncertainty, and prevent the reduction to absolute figures. Murphy recorded 11 successes in his series of 32 cases of nerve crossing for facial paralysis. These were collected from literature prior to 1907. Murphy's collaboration of results for nerve crossing in poliomyelitis shows 2 good results in 12 cases. It is important to remember that in poliomyelitis the damage is in the ganglia of the anterior columns of the cord, and Sherren has suggested that the nerve graft throws too much work upon these primary structures. Sherren, in 1906, collected 26 cases of nerve graft with 6 successes.

The European war statistics are very unsatisfactory, as the end-results are not definitely known. Some of the results are positively bad. The great diversity of opinion as to fundamental technic probably accounts for the disparity in results. Edinger's results show only sensory improvements. Hardonin reports good results. Borchardt reports 56 cases with 21 improved. Grosse reports 28 operations with 8 good results. Tuffier reports 280 cases, of which 19 were cases of nerve suture without one recovery of motion. Sicard reports no motor recovery after one year. Thoele, in 17 cases of neurolysis, reports 2 recoveries, and in 11 cases of suture 4 improved, but no complete return of motor function. In 10 cases of recent suture 2 showed motor improvement. Thienann reports return in function in sutured sciatic nerve in two weeks.

The results so disappointing point either to one of two things: There either must be unsurmountable difficulties as a result of damage due to infection, or there must be a disregard for proper technic.

In regard to the cardinal principles of technic in nerve suture,—that is, hemostasis, handling of scar tissue, suture material investment of the suture line with some form of protection, and asepsis,—there seems to be a difference of opinion. All are practically agreed on the necessity of perfect hemostasis, both intraneural and extraneural, as blood inside of the nerve invariably means scar tissue. This is emphasized by Schiffbauer, Edinger, and Lewis. In relation to this, the use of the tourniquet for the temporary control of hemorrhage is condemned by Schiffbauer, Thoele, and Grosse. In regard to the handling

of scar tissue in the neighborhood of injured nerves, there seems to be a great variety of procedure. Scar tissue will certainly inhibit the growth of axis cylinders. Whether it is better to remove the pre-existing scar tissue so as to allow free growth of axis cylinders necessary to regeneration of a nerve, or to leave it alone, seems to be met in different ways. Stoffel dissects out all scar tissue, and pays special attention to endoneural connective tissue and coapting the individual nerve bundles. Borchardt excised scar tissue except where it extends so far into the nerve as to render direct suture impossible. His researches show very extensive involvement with scar tissue in apparently normal nerves. Sharpe and Grosse resect their scar tissue. On the other hand, Tuffier leaves the bridge of scar tissue between the ends of the nerve and does not resect the scar. Dumas raises nerve and scar tissue *en masse*. Sicard liberates from scar tissue, and resects. These operators then either pay especial attention to scar tissue, or disregard it. Stoffel, Grosse, and Borchardt, who remove scar tissue, have had better results in regard to motor function than Tuffier or Dumas or Ferrand. Therefore, the treatment of scar tissue seems a vital factor and its removal to cause less damage in the future than its presence actually causes at the time. In regard to anatomical restoration of the various nerve bundles Stoffel and Lewis lay special stress.

The use of some investment to keep out the ingrowth of extraneous connective tissue is common in the war zone. Ferrand and Schiffbauer free the nerve, and transplant it to normal muscle. Borchardt uses fascia or fatty tubes. Thoele uses a flat band of fascia, and condemns the use of tubes. Stoffel tubulizes with formalized calves' veins and peritoneum. Bittorf uses calves' arteries and celluloid tubes. Edinger uses fascial tubes filled with agar. Auerbach has employed tubes of Galalith, and Lewis has used the tube of fascia.

In general, it may be said that most workers have found it necessary to cover their line of suture with some investment.

The kind of suture employed varies. Schiffbauer advocates small silk sutures in the sheath, while Sherren insists on the use of catgut.

The grand total of these results is disappointing; therefore, experimental work seems clearly indicated. With experimental work the anastomosis of normal nerve should not be taken as a standard. Almost every freshly sectioned nerve



can be reunited with establishment of function, but the restoration of torn or avulsed nerves surrounded by scar tissue and intrinsically damaged is a very different problem. Therefore, in experimental work actual clinical conditions were simulated by a preceding operation that resulted in section of the nerve with coincident connective-tissue changes about the site of operation. One hundred and four animal experiments were used as a basis of a conclusion.

In such condition to restore a sectioned nerve a free and unobstructed path must be furnished for the downgrowth of the axis cylinders, if we accept the central origin of axis cylinders in regeneration of nerves. Perroncetti has shown that axis cylinders commence to grow within a few hours after the section of the nerve, as though seeking a new path. Harrison has determined the rate of growth as one micron per second in plasma. Scar tissue already existing, either in the nerve or about the nerve, seals these tender threads in a mass of tissue so as to prevent their development. Usually a sectioned nerve presents a ball of connective tissue on the proximal end. Sometimes when infection has occurred the connective tissue reaches a long way up into the nerve. When this occurs it seems advisable to cut away all involved nerve, using a sharp knife for section. Continued and repeated section should be made until normal nerve is reached on the proximal segment. This may render it impossible to bring the cut ends of the nerve in contact, but when scar tissue is left it is utterly useless to expect regeneration. The section should be made until normal nerve is reached; on such section bleeding in a nerve will occur. Intraneural bleeding must be controlled, if necessary by fine ligatures. Adrenalin has been advocated, but is not an ideal agent. There is probably no more prolific cause for development of connective tissue than a small intraneural hematoma.

*Suture.*—The clean blood-free ends of the nerve must be united. If they can readily be brought together this may be done by direct suture. One stitch of catgut, through and through, seems to be preferable to a circular suture of the sheath. Suture of the sheath with very fine silk has been followed with failure on account of connective-tissue overgrowth. If the cut ends do not fall together, they may be joined with a hollow tube. Two methods have given a measure of success. For distances of four inches or less these are the use of fatty fascial tubes

or the use of autogenous veins. The fascial tube of Lewis, when properly made, seems to be an ideal procedure, as material is readily available. In applying a tube of fascia to restore the continuity of a nerve, trauma must be avoided, not alone because it damages the axis cylinders, but because it stimulates connective-tissue overgrowth. In applying the cuff of fascia, care has to be exercised so as not to introduce the suture into the nerve itself, as that will give a tumor-like mass of connective tissue. In addition, the cuff must not strangulate, but must fit closely. Properly adjusted tubes of fat-bearing fascia give good results.

In my own work veins have proved more satisfactory than the use of fascial tubes. The vein, first removed by sharp dissection, is washed in Ringer's solution and stored in albolene. As much care must be exercised in handling this segment of vessel as would be needed in performing blood-vessel transplantation. The nerve prepared as in fascial transplantation is lightly slipped into the ends of the vein, and secured with a single fine silk stitch. Usually, one is enough. If more than one is used, the stitches should be interrupted, so as not to strangulate the nerve. They should never enter anything more than the nerve sheath. Multiplication of suture is to be avoided, and delicacy of technic is necessary, as pre-existing scar tissue is readily stimulated into new growth. Even keloid-like growths have been reported in this operation. Thoele has advocated the use of bands of fascia in place of tubes. Axis cylinders may grow along these bands, as was shown in one of our experiments, where a two inch defect was so filled in and regeneration occurred along the tract. This experiment is not sufficiently established to recommend it. This method was suggested by the tendency nerves have to grow along fascial planes when no attempt had been made at anastomosis.

Tubes of fat may be substituted for a vein, and give good results. All varieties of tubes furnish means of establishing anatomical continuity of trunks. When we have a segregation of the motor and sensory fibers into two distinct trunks, it is often difficult to attach the proximal sensory trunk to the distal sensory trunk, and *vice versa* with the motor trunk. When a tube is employed, the sensory fibers will select their own route, as well as the motor fibres, thus doing away with the exact anatomical restoration of these trunks.

The experimental results with veins in replacing defects of an inch or more in badly damaged

nerves have given about forty per cent of perfect results.

I wish to again emphasize that anastomosis of normal nerves gives a much higher result. With fascia, results have been about the same. These figures seem disappointing, but are less so than the figures from war surgery. The failures have been due to some one or more of the following causes: first, failure to resect enough intraneural connective tissue in the proximal segment; second, failure to control intraneural hemorrhage; third, too deeply placed stitches when sewing the sheath; fourth, the use of veins or fascia in areas of pre-existing scar-tissue (in areas of scar-tissue, investment with fatty fascia and complete neurolysis are indicated with or without transplantation to normal muscle); fifth, infection; sixth, defects of over four inches should not be repaired by tubulization, but should be the subjects of nerve grafting.

In judging results, merely restoration of function was not taken as proof of regeneration for the reason that the function of one paralyzed muscle may be assumed by another muscle with a different nerve supply. Electrical stimulation of isolated nerve trunks and histologic examination of restored nerves were used as a basis for judging success.

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#### DISCUSSION

DR. EARLE R. HARE (Minneapolis): The exceedingly interesting paper of Dr. Corbett has given me, and, I am sure, it has given you, a great deal of pleasure. It is characteristic of all of Dr. Corbett's work, and it is backed up by the experimental work in which he is doing so much.

Some points referred to in his paper are of special interest, the first of which is the type of injury. He emphasized especially the type of injury, and spoke of physiological section of the nerve. By physiological section of the nerve, I understand that there may be sufficient subcutaneous traumatism to cause a complete suspension of function of the nerve without laceration or a solution of the continuity of the axis cylinders. If that be true, by waiting for a certain length of time, a maximum of six months, the function of the nerve will be re-established without interference from a surgical standpoint. But if there be an anatomical section of the nerve, there is no restoration of function unless the severed ends be brought into apposition; and even then there are certain requisites in the technic which must be observed to be followed by proper restoration of function.

The diagnosis of nerve-traumatism is very interesting, and it depends largely upon a careful examination of the individual injury. The loss of the epicritic and protopathic functions of the nerve, together with the loss of the deep sensory functions, may all be established by a careful examination in the distribution of the nerves supposed to be involved. I am glad Dr.



Corbett emphasized this point: the muscle may be completely paralyzed and still examination fail to reveal the paralysis because some of the synergistic muscles take up the function of the involved muscle and apparently cover up the defect.

He also mentioned the time for repair, and I believe that there is no dissenting opinion with reference to the time for repair or the suture of a nerve in perfectly clean incised wounds. It should be immediate. If a proper technic is carried out in the approximation, there will be regeneration of function; but in the case of infection it is necessary to wait the proper length of time to avoid dire results which follow repair of the nerve in the presence of infection.

Scar-tissue will completely prevent the restoration of function, and there is always a certain amount of scar-tissue present, and it may be very extensive following any section or injury of the nerve. The axis cylinders must have in the repair an opportunity to pass down into the distal segment of the nerve, and they cannot pass down unless the scar-tissue has been properly removed from both ends of the severed nerve.

The effect of a foreign body was mentioned. Pressure from a foreign body, if it be in the vicinity of the nerve, will cause degeneration of the nerve; it will produce the same effect as scar-tissue.

I remember to have seen one case in my student days which impressed itself upon me in which the great sciatic nerve had been severed. The ends were picked up and sutured, and the clinician who did this work told us that he began to see evidences of regeneration in a period of three weeks, although the injury had preceded the operation some fourteen years. That seems remarkable to me, but Dr. Corbett has reported evidences of regeneration in the same period.

I also remember to have seen infection in a wound defeat primary suture of the nerves, and cause degeneration of nerves not involved in the primary accident. I recall an injury to an elbow which involved the complete section of the ulnar nerve at the elbow. Primary suture was made at the time of the accident; infection supervened and caused sloughing of part of the sutured ends of the nerve, with a complete degeneration of the nerve. This same person had an infection in the forearm, involving the flexor muscles, which later involved the median nerve in cicatricial tissue, and the pressure from the scar-tissue surrounding the median nerve completely destroyed its function. So I do not believe it makes much difference whether scar-tissue is extra-neural or intraneural so far as the ultimate function of the nerve is concerned.

The results in nerve surgery are ordinarily disappointing, still Dr. Corbett's results in reporting 40 per cent of successes are not so disappointing, for that is much better than some of the results reported by other men.

I want to emphasize that in my opinion successful results depend upon two factors. First, absence of scar-tissue either within or without the nerve; and secondly, the absence of hemorrhage which will eventually result in the formation of scar-tissue in or about the nerve, and thus defeat the purpose of the operation.

DR. A. A. LAW (Minneapolis): Dr. Corbett has shown us some of the practical applications of his experimental work. His paper, I believe, epitomizes the most recent and latest thoughts of neural surgery. I

am thoroughly convinced that neural surgery has crystallized itself into definite lines of technic the same as other specialized branches of surgery, such as the surgery of bones and joints, and gastrointestinal surgery. Why is it we only get 30 per cent of successful nerve sutures or anastomoses? I am sure it is largely due to the fact that the men who essay these surgical procedures do not master the fundamental principles of the most approved technic. Dr. Corbett tells us that after following certain lines of a definite technic, he has 40 per cent of successes in his total, I believe, of 140 cases. If he had taken his last 20 cases, I believe he would have had 80 per cent of successes. The trouble is so many different men resort to so many different procedures, and they do not appreciate the necessity of confining themselves to a certain definite technic.

What are the primary essentials in sectioning a nerve in this work? That you make serial sections until you get well beyond the scar-tissues and have bundles of axons standing up like brush ends so you cannot mistake them. Dr. Corbett spoke about it being unnecessary to section the distal ends of a divided nerve. I have clinically found scar-tissue in the distal fragment of a divided nerve; so much scar that it simulated a proximal neuroma and had to be removed.

In the way of sutures, we should deprecate the use of everything except catgut. Nonabsorbable sutures act as foreign bodies and invite giant cell infiltration and scar-tissue formation in the nerve which causes strangulation of the axons. We believe every single case of nerve suture should be reinforced by fascial or fat, pedicled or free grafts, wrapped around the suture line. We do not believe in anything except the autogenous transplant in any of these cases of neural suture, and if we will conform to this technique, we will have a higher percentage of successes. We know the suture line is liable to the ingrowth of connective tissue, therefore we must protect it. Whether we protect it by the vein graft, the fascial pedicled or free graft, or pedicled or free fat graft, we do not care, so long as you protect it against the ingrowth of connective tissue.

As to tubulization, I take issue with Dr. Corbett. He has had greater success on animals in the utilization of vein grafts in transplantation and tubulization than any other observer. In some of the short vein grafts, you will get successful results, but the criticism I have of vein grafts is that you sacrifice a major vein; that the endothelium of the intima of the vein is capable of tremendous proliferation, the vein collapses and you get contact of this intima which invites proliferation and obstruction of the segment. Unquestionably with a short graft which may not collapse, you can get successful transplantation of the vein and regeneration of the nerve; but, fascial tubulization to my mind is of the greatest utility. We have an unlimited amount of fascia lata; we do not destroy anything else as you do in sacrificing a vein or in the transplantation of a sensory nerve. In an instance where there was destruction of three inches of the musculospiral nerve of two years standing, we grafted a fascial tube to bridge the defect, the nerve completely regenerated through this tube. Lewis has shown that protoplasmic bands springing from both nerve ends invite regeneration of the proximal neuraxons, down along their pathways. In the case of irritation of a nerve due to a foreign body or



fragments of bone, as where the ulnar nerve is irritated by the internal condyle, if this nerve is transplanted to another area and wrapped in protective fat or fascia, it will recover. We have had eight of these cases.

The use of the faradic excitator is imperative in the differentiation as to which nerve should be anastomosed, and which should not be anastomosed. (By means of slides Dr. Law showed and explained the different types of anastomosis.)

DR. E. H. BECKMAN (Rochester): I have been obliged to repair a number of nerve injuries. In going over the literature I have been at a loss to find a definite method of procedure and have been much interested in the work of Dr. Kirk and Dr. Lewis of Chicago upon the regeneration of nerves; and also in this work of Dr. Corbett.

Dr. Lewis and Dr. Kirk have stated that any vein cup is rather unreliable because the endothelial lining of the vein proliferates, and that proliferation may be great enough to prevent the neuraxons from growing through the cylinder.

It is gratifying to hear Dr. Corbett say that he has better results with the vein than with fascia, if I understand him correctly. I have six times anastomosed the spinal accessory into the facial for facial paralysis and five times I used the vein cup. I have seen no objection to it in this region because, in making the incision, one nearly always passes across the external jugular vein or in the vicinity of the facial vein, either one of which can be sacrificed without any risk. In four of these patients I know there is regeneration; I have not been

able to hear from one; and the last case is too recent to show the result.

I am rather surprised to hear Dr. Corbett say that it is unnecessary, or that it is not so necessary, to remove the distal neuroma. We know that in most instances the proximal neuroma is larger than the distal, but in certain cases there is a considerable neuroma on both ends of the sectioned nerve. I cannot understand how nerve elements can go through a neuroma, such as we often see on the distal side, unless it is removed, a point which Dr. Corbett did not make exactly clear. I would like to ask him if he had considerable intervals between the nerve ends, and from his experience what particular method of procedure he would use. It is true, that in animals there is often regeneration with almost any method. I think it remains to be proven whether by utilizing the same method we can depend on as many regenerations in man as in animals.

DR. CORBETT (closing): I want to thank Dr. Law and Dr. Beckman for calling my attention to the point they emphasize. The message that I want to convey is this: that in the proximal part of the nerve we must cut away every bit of scar-tissue until we reach normal nerve. In the distal segment, if there is a distinct knob of connective tissue, it should be cut away; but repeated section of the degenerated nerve in an attempt to find tissue that is free from scar-tissue is utterly futile.

I again want to emphasize that these experiments were carried out, not on normal nerves, but in tissues that had been greatly damaged by preceding inflammation.

## ACTINOMYCOSIS\*

By N. O. RAMSTAD, M. D., F. A. C. S.

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The finding of a number of cases of actinomycosis recently has prompted the preparation of this clinical paper. Actinomycosis is a somewhat rare infection, which is often overlooked, or at least is diagnosed quite late.

Actinomycosis is due to an anaërobic organism, which appears in pus or tissue as a small, light-yellow, seed-like body. Under the microscope it appears to consist of radiating, club-shaped bodies arranged in a circular manner.

The literature on actinomycosis, since Langenbeck discovered the granules, in 1845, is quite extensive. There has been a marked difference of opinion in regard to its true nature. The statements concerning it in our leading medical books are quite confusing, and at times conflicting. Israel contends that the infectious agent is an anaërobic organism, which grows with great difficulty and only at body-temperature; and in

this statement he is supported by prominent investigators of Germany, Japan, and the Scandinavian countries. Bostrum and his adherents contend that it is an aërobic organism which grows easily at room- or body-temperature. The cultural characteristics mentioned by the supporters of these views also vary greatly. The consensus of opinion at present is that actinomycosis of the human belongs to the anaërobic class, as described by Israel. The aërobic organism that produces a globule resembling actinomycosis is undoubtedly a streptothrix. Microscopically these two organisms resemble each other closely, and it is impossible to determine which is present until cultures have been made. In reviewing the literature we found two instances in which both kinds of organisms were present in the same individual. The fungus is present on various grasses and grains. This explains the source of infection in cattle, where it usually attacks the tongue and the region of the lower

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jaw, producing what is known as "lumpy jaw." In man the infection does not ordinarily come from infected meat, but from the chewing of grains or grasses, or from the eating of raw fruits and vegetables which have been packed in hay or straw.

The port of entry is most often the mouth, where diseased teeth and gums, tonsillar crypts, and the minute abrasions caused by mastication favor its admission to the tissues. There is but little possibility of the infection gaining entrance through the stomach or small intestine, but in the cecum and large intestine the stagnation of the intestinal contents favors the entry of the fungus into the intestinal wall. An attack of appendicitis frequently assists this process. Actinomycosis is occasionally found in the appendix, and sometimes it is found in the pus from appendiceal sinuses. It is possible for the lungs to be directly infected by the inhalation of the powdered, dry fungus, but the pulmonary infection usually comes from the esophagus.

The tissues involved by actinomycosis are the connective tissues, especially those underneath the skin, mucous membrane, peritoneum, and pleura. The lower jaw-bone may be directly infected from a diseased tooth. The brain, liver, kidneys, ribs, and vertebrae may be secondarily involved. In the lungs the infection causes indurated areas, which may soften and form abscesses. These may discharge into a bronchus, or may extend downward to the base of the lung and discharge between the ribs or underneath the diaphragm. The infection spreads by continuity and very rarely by the blood-stream or the lymph-vessels. The mouth and neck are the most frequent sites for the infection; the large bowel and the thorax come next in the order of frequency. The peritoneum and the serous surfaces offer considerable resistance to its growth.

#### SYMPTOMS

The clinical symptoms may be divided into two stages, the stage of induration and the stage of softening. During the first stage there is a gradually increasing, diffuse swelling with moderate pain, slight rise of temperature, and, ordinarily, no gland involvement. During the softening the mass extends outward toward the skin. Frequently a mixed infection takes place, which makes it resemble an acute abscess.

A typical history of the infection in the region of the mouth and neck would be about as follows: The primary entry is usually through

the tonsils, diseased teeth and gums, or in the tissues about the lower jaw. After three or four weeks a swelling occurs below the jaw, which gradually increases in size and hardness. There is a moderate amount of pain, and the patient is often unable to fully open the jaw. About the second or third month softening occurs, and a sinus forms spontaneously unless the mass has been incised. If the discharging pus be examined closely on a slide, or in a shallow glass dish, small light yellow granules may be observed. With the microscope the characteristic fungus or fragments of it with its clubbed ends are easily found.

In the abdomen there may be a slowly forming mass with a progressive obstruction; or acute inflammatory symptoms may ensue. The appendix is frequently involved; and, if an abscess about an appendix which is affected with actinomycosis be drained, it does not usually heal.

In the chest there are two forms of this infection, the indurated form, which probably extends by continuity from the mediastinum, and the bronchial type. In the latter the mucous membrane is early involved with symptoms resembling a chronic bronchitis or a pulmonary tuberculosis.

#### DIAGNOSIS

The diagnosis is frequently made late. Careful examination of the pus or scrapings from discharging sinuses should always be made. The finding of the characteristic granules in the pus, in addition to the microscopic and cultural findings, will make a definite diagnosis.

In the differential diagnosis we must consider tuberculosis, syphilis, septic infection, and tumor. About the mouth and neck we must consider, in addition, periostitis, gland infection, dentigerous cysts, and osteomyelitis. In the lower abdomen we must differentiate appendicitis, tuberculosis, tumor, foreign body, and abnormalities of the cecum or ileum. In the thorax we must differentiate tuberculosis, tumors, abscesses, and upper abdominal conditions, such as perforating gastric or duodenal ulcer, gall-stones, and subphrenic abscess.

#### PROGNOSIS

The prognosis is usually favorable in mouth and neck infection, and whenever the infection is so located that it can be completely removed. In the infiltrating type of thoracic and abdominal infections the prognosis is not good.

## TREATMENT

The treatment of actinomycosis by vaccines, x-ray, and radium is advocated by various authorities, but satisfactory results have not been reported. The best treatment in our hands has consisted in the removal of the primary focus, and as much of the infected tissue as possible, with prolonged free drainage. Internally iodides were given to the point of saturation, and of late we have been giving copper sulphate internally and using a solution of it for the daily dressing of the wounds. The effect of the iodides is increased by giving them intermittently.

## CASE-REPORTS

CASE 1.—F. H., man, aged 28, photographer. Three months previously he had a sore throat with difficulty in swallowing. Two weeks after its onset he noticed a swelling at the angle of the jaw. Two incisions had been made in this swelling before he came to us for treatment. The neck presented three or four nodular, reddened areas with angry-looking sinuses. In the pus were found the characteristic yellow, seed-like bodies of actinomycosis. The indurated area was curetted, and antiseptic dressings applied daily. Potassium iodide was given to the point of saturation. Recovery resulted in six weeks. The patient gave a history of daily chewing grass, which he picked along the roadway.

CASE 2.—H. E. M., man, 54, farmer. His trouble began six weeks ago with a painful swelling at the angle of the right jaw. This was incised by a physician, who found no pus. His examination showed a collar-like induration involving the front and both sides of the neck. There was a sinus present and a purulent discharge. He had considerable difficulty with respiration and a marked bronchitis. The pus from the sinus and the sputum both contained actinomycosis. A light anesthetic was given, and the inflamed areas were incised and curetted, and swabbed with copper sulphate solution. The after-treatment consisted in the administration of copper sulphate, grain one-fourth, t.i.d., and the giving of potassium iodide up to three hundred grains per day. Improvement was rather slow, but at the end of six weeks the sinuses had healed, and we have found no further trace of infection with him.

CASE 3.—A. P., man, 62, farmer. Two months before coming here he had a swelling at the angle of the right lower jaw, which was incised by his physician. A small amount of pus was found, and he was relieved for a few days; but the pain and swelling increased, and in two weeks another sinus formed. Examination showed a swollen, reddened area at the angle of the jaw, difficulty of opening the jaw, and two discharging sinuses. The pus was found to contain actinomycosis. He had a bad pyorrhea and many diseased teeth. The mass was incised, curetted, and swabbed with phenol and alcohol. He was treated daily with applications of copper sulphate solution, and was given potassium iodide up to three hundred grains daily with copper sulphate, grain one-half three times daily. A few new pockets of pus developed from time to time. These

were opened, and swabbed with iodine solution. At the end of nine weeks he was cured.

CASE 4.—A. H., man, aged 46, farmer and stockman. He gave a history of having been ill about two weeks, and thought that he had lately taken a severe cold. The attending physician found small areas of consolidation in the lower part of the right lung with considerable bronchitis and a pleural rub. Examinations of the sputum were negative for tuberculosis. The expectoration was quite free, and frequently contained blood, but no pus. After a few days actinomycosis was found in the sputum. Potassium iodide was administered in increasing doses, and the patient left the hospital in three weeks apparently cured.

CASE 5.—W. O. C., girl, aged 8. For six weeks she has noted a gradually increasing ulcer of the neck just above the sternum. She lives in town, and has nothing to do with stock. Examination showed a superficial ulcer one inch in diameter. The pus contained actinomycosis. The ulcer was curetted and cauterized with cautery. The patient is still under treatment, and seems to be improving steadily.

CASE 6.—A. S., man, aged 19, farmer. He gave a history of abdominal pain for two weeks, which localized in the left lower quarter of the abdomen. Examination showed a fluctuating, moderately tender, indurated mass below Poupart's ligament. An incision under local anesthesia liberated considerable pus, in which actinomycosis was found. The sinus extended into the abdomen through the femoral canal. Thorough drainage was kept up. Iodides were given to the limit, over five hundred grains per day, and copper sulphate was used internally and externally but the patient gradually became worse. The lungs became infected, multiple sinuses formed in the abdomen, and, in spite of prolonged hospital treatment, he died a short time after he returned home.

## DISCUSSION

DR. H. E. FRENCH (University): Really, I am not connected with the laboratory, but rather with the teaching end. I have seen a little actinomycosis as a student and interne. I remember one section of liver where we had to look considerably before we found any real liver tissues, but, I am sure, I cannot add anything to the discussion.

DR. L. D. BRISTOL (University): I have little to offer. During this last year we made a diagnosis of actinomycosis in a turkey, the organs of which we sent to the laboratory for diagnosis, and this experience suggests that there is a possibility of this infection being derived, not only from cattle, but possibly from some of our domestic fowls about the farm. Of course the ideas of most of the investigators on this subject lead them to believe that the infection is spread very largely through the intestinal discharges from cattle upon the ground and pastures, and that the human contracts the infection, in a majority of instances, as Dr. Ramstad has indicated, by the chewing of grass or grain which are plucked from the pastures or fields which may have been contaminated by the stock in such a way. The principle thing I wish to emphasize is this possibility of the domestic fowl acting as the carriers of this infection.

DR. GEO. A. DURNIN (Northfield): I desire to ask a



question of Dr. Ramstad as to whether he has found that the bone-infections have cleared up with local treatment with iodide. I ran across one of these cases in which a disease of the mouth had been opened two or three times by different men, and the impression was that there was an involvement of the tooth; but on examining it I found an abscess about to discharge, in which these granules attracted my attention. I had never seen the thing before, but when making an examination I found it was actinomycosis. The treatment I adopted was along the line of curetting, extracting the teeth involved and giving the patient full doses of iodide. The case improved, but left the community. I have heard from her twice since, about four months ago, and it was shrinking down considerable, yet I cannot say it was a cured case, in fact I could hardly expect it.

DR. M. E. TRAINOR (Williston): I heard of a case in Montana, but it was not my case, in which a diagnosis of tuberculosis had been made. Sputum was sent to the laboratory in Helena, and before a report was obtained the man was put on creosote treatment, and the doctor who was taking care of the patient did not

hear any more of him for three or four months. Finally the man came to town one day, and spoke to the doctor about it, and said he was entirely well. I do not know whether it was creosote or what they gave him, but he was troubled no more. The diagnosis had been made by the state laboratory in Helena, so the chances are it was really active actinomycosis.

DR. RAMSTAD (closing): I was interested in hearing Dr. Bristol's report of the presence of actinomycosis in a turkey. I have read all the literature I could find the last three months on the subject, and I have not come across any reference to that fact, and I think that it would be an interesting thing to publish, and thus bring before the medical profession.

We have not had a great experience in the treatment of bone actinomycosis. The treatment should be based on the fact that the organism in anaërobic, and oxygen should be admitted to the diseased area as freely as possible. The bone should be thoroughly opened up, and treated with strong antiseptic solutions, and so dressed that the air can readily come into contact with the diseased area.

## THE FORCEPS OPERATION\*

BY ROBERT S. HART, M. D.

TURTON, SOUTH DAKOTA

The indications for forceps are many and various. As I cannot consider all of them, I wish to give special attention to two phases, namely, the low operation for rigid perineum, inertia, and the like, and a comparison of alternatives when the head is halted high in the pelvis.

The essential feature of the low operation is that of hastening the delivery of a woman who, in most cases, would ultimately deliver herself; hence the indication is always relative, the alternative being either uterine stimulation or the so-called "masterly inactivity." We have in pituitary extract a powerful agent for the stimulation of the uterus. It has been sadly misused at times, with evil results, but in proper cases it will often suffice for delivery. It should not be used in obstructed cases nor before the dilatation is nearly complete; it is very dangerous if the blood-pressure is much above normal; in all cases one should be on guard against the exhaustion of over-stimulation, with the possibility of post-partum hemorrhage. If pituitary extract is not contra-indicated by these conditions it is better, when the head has passed the mid-pelvis and advance has ceased, to attempt delivery with its aid than to have immediate recourse to forceps.

\*Read at the 35th annual meeting of the South Dakota State Medical Association at Aberdeen, May 23 and 24, 1916.

The expectant treatment under such circumstances is no longer justifiable. Formerly it was far from unusual for the expulsive stage of labor to be stretched out six, eight or twelve hours, or longer, the attendant urging that we "let Nature take her course"; and Nature did, too often taking the patient also. We are still somewhat under the baleful influence of the antique doctrine of "masterly inactivity," but we have reduced the period of inactivity, with a corresponding reduction of mortality. This, however, is only a part of our duty: we must assume responsibility for the subsequent health of the mother. Grand-mother, if she still lived, may have felt that God was good, and she could ask no more; but the woman of today has a right to insist, and does insist, that she be restored to her previous health. Even yet, all too many women are left in a state of semi-invalidism, continued weakness, persistent fatigue, and relative incompetence. I am convinced that a large part of the marital unhappiness of today is due to the everlasting monotony of existence for women barely able, because of a multiplicity of post-obstetric ailments, to grind through the day's routine, and wholly unable at its end to take part in that social life that lends the spice of variety. A large part of this late morbidity is due to lack of proper care before

and after delivery; a still larger part, I believe, is due to the exhaustion and other evils of labor unduly prolonged.

Post-partum morbidity increases with the duration of labor, or, rather, with the duration of the second stage. Not only is there greater opportunity for the introduction of infectious organisms, but the long-continued pressure prepares the soil for infection, and the exhaustion of the mother reduces her general protective mechanism to its lowest efficiency.

There has been much said lately regarding the relief of pain in obstetrics. Part of this is simply an effort at humanitarianism, and part an attempt to reduce the pernicious after-effects of pain. Crile has shown that pain affects the nervous system in much the same way as do fatigue, infection, and the major emotions of fear, anger, and anxiety. Our obstetric patients are exposed to several, perhaps to most, of these dangers; and whatever we can do to reduce them is good obstetrics, if we do not, by the means employed, induce greater danger otherwise.

The relief of pain may be by inhalation-anesthesia or by opiate, with or without sundry synergistic agents of debatable value; but the simple masking of pain is as inconclusive here as in appendicitis; we must remove or hasten the removal of the cause. In our attempts to relieve pain we often delay labor. The very means taken to reduce pain allow us to employ forceps, to finish delivery, to put an end to the whole matter, removing at once the evils of pain, anxiety, fatigue, long anesthesia, and pressure.

Regarding the danger of sepsis from the use of forceps: I am convinced that the forceps can be used aseptically, if the woman be not already infected, by anyone fit to take charge of *any* labor; that the likelihood of infection from forceps is less than the danger of infection from delay; that the infection, if any, from forceps is less dangerous than that which assails a woman worn out by too much "watchful waiting"; that the morbidity directly traceable to the modern use of forceps is more than offset by the reduction in the morbidity of delay. So I urge you, for the sake of the life and health of the mother and child, when labor is delayed with the head low in the pelvis, to turn more readily and earlier to the forceps.

In the management of cases where advance has ceased with the head high in the pelvis, we

must consider the relative advantages of the possible alternative procedures. These are embryotomy, symphyseotomy and hebosteotomy, podalic version, Cesarean section, and forceps. Pituitary extract might possibly be used if the halt is due to inertia, but it is of doubtful value. Inertia at this stage of labor is usually due to obstruction, which would interdict its use; if the uterus is exhausted so early without obstruction, more radical measures than this will be necessary, sooner or later, and are better employed at once. If the woman has been seen long enough before labor, and the certainty of difficulty in delivery is recognized, we must also consider induction of labor before term. This is allowable, and is indeed the method of choice in moderate degrees of pelvic contraction; but the interest of the child demands that it be deferred as long as possible, and this, with the fact that induced labors are likely to be slow, will usually lead one to finish delivery with the forceps.

Embryotomy is no longer considered with a living child; if the child is dead and forceps delivery impossible, it is the most satisfactory procedure. In this day I do not believe that symphyseotomy and hebosteotomy are ever justified. Podalic version cannot be considered the method of choice except in transverse presentations, mentoposterior cases, and placenta previa; in other cases, it has every disadvantage of forceps and distinctly increases the jeopardy of the child.

A routine use of the pelvimeter has shown me that pelvic deformity is by no means rare in this state, though usually of slight degree; in most cases the forceps is sufficient for delivery. The gross deformities and cases of obstruction by large cystic or solid growths require Cesarean section or embryotomy, or, if discovered early enough, may permit premature labor.

Cesarean section has advanced from its old place of last resort to a high rank among our obstetric expedients—too high, I believe, even in the great obstetric clinics where they have at hand every facility for its performance. This operation has been performed for nearly every possible reason and excuse, and particularly there has been a tendency to allow it to encroach on the field of forceps, limiting the latter to continually smaller degrees of contraction. I take it this Association is interested in obstetrics chiefly as we ourselves must practice it, and, however much we might like to follow the methods found most satisfactory in the great clinics, we must

be guided in great part by local conditions. The vast majority of our cases are seen in the home, most of them so situated that emergencies arising in the course of labor must be treated in the home, as removal to a hospital is not often feasible. Under such circumstances, the surgical methods of delivery are not to be considered, and we who practise in communities where access to a hospital is difficult must foster and improve the more definitely obstetric methods of delivery. We must be prepared to undertake difficult forceps operations under adverse circumstances, and success will depend on our familiarity with the means and method.

The high-forceps operation has been severely criticised lately, and there has been a strong tendency to discredit it and place undue emphasis on its possible dangers. Dangerous it is at times, but the danger lies, not in the forceps, if properly used, but in the state requiring its use; and I contend that the prompt and proper use of forceps reduces the danger more than any other procedure we may attempt in our usual circumstances.

The high operation requires the use of some appliance to secure traction in the axis of the upper pelvis; and one thing that has tended to increase the number of cases showing damage from this operation is, that its performance is often attempted without a proper instrument. For this purpose the specially designed forceps of Tarnier is probably the best; its complication, however, renders it rather difficult to keep in order, troublesome to use, and markedly increases its cost, so that often it is not at hand when needed. Its curves, both cephalic and pelvic, and the multiplicity of attachments make it ill suited to the low operation; and for satisfaction in this more common work one must carry other forceps. The Elliott and Simpson forceps are admirable for general use, neither too short for the high operation nor unwieldily complicated for the low. Attempts have been made to apply to these models various forms of axis-traction attachments, and I wish to present here another.

This instrument is so designed that it may be readily attached or removed while the forceps is in position on the head; it gives true axis-traction while it is needed, and may be quickly and completely disposed of when the head reaches the perineum; it requires no hooks, locks, slides, valves, set-screws, or other thing-

umbobs either to secure it or release it; it sends no new machinery into the birth-canal, for it is wholly extravaginal; it is stronger than tapes, which only *seem* to give axis-traction, or the undeservedly popular axis-traction hooks, which are at once inconvenient and inefficient; it will fit the Elliott and Simpson forceps, and can be modified to suit any other of the modern instruments; it can be made cheaply by an instrument-house or by the local blacksmith, as this one was; it is not patented. For the execution of the first part of the Scanzoni maneuver in occipitoposterior cases, it is less satisfactory than the Tarnier instrument, which allows a readier rotation with traction in a fixed direction, but in other head cases it can completely replace that instrument. I offer it for its lack of complication, its cheapness, its convenience, and its efficiency.

To sum up: When labor halts with the head low, an early forceps delivery will do less damage and leave the woman in better state than a spontaneous delivery attained after long delay. If the head is halted high in the pelvis and vaginal delivery is a possibility, we in this state will be surer of saving life, with less after-illness, if we rely on the familiar forceps than if we attempt surgical methods, and the earlier we apply forceps after advance ceases, the better will our results be.

#### DISCUSSION

DR. W. R. BALL (Mitchell): I think the doctor is to be congratulated on the excellent paper he has given us on the use of forceps. There is no doubt but what we are all familiar with the efficiency of the forceps when it is properly used, and there is no doubt that it is life-saving to the child and mother.

There is just one point I wish to make in reference to the use of forceps, and that is not to apply the instrument before the head is sufficiently moulded—not to apply it until there is full dilatation, or before the membranes are ruptured.

You are all familiar with the tendency on the part of the average practitioner to terminate labor quickly when he introduces the forceps. When the head is low, when there is bulging and stretching of the perineum, there is a great tendency to hasten delivery. That is where we are liable to get a complication in the way of rupture. After the forceps is applied, one should never pull the head from the pelvis as you would pull a cork out of a bottle, but take it easy, imitate Nature the same as Nature would do in a case of spontaneous delivery. If you will carry the handles of the forceps to the mother's abdomen, and aid the mechanical expulsion, you will prevent more tears possibly than you can during spontaneous labor, because you have the forceps under control better than you have the handles of the forceps.

Of course, it is hardly necessary for me to call your



attention to the point of insisting on strict asepsis when application of the forceps is essential.

An ideal use for forceps is uterine inertia, and I maintain that when the contraction pains are not sufficient, or when you discover the patient is not doing hard work, is not making progress, if you have the head low down, for instance, an hour and a half or two hours, you are justified in using forceps, and if you use them judiciously you are practically causing no danger or risk to the patient.

The application of high forceps is difficult and dangerous, and I would maintain that in all degrees of contracted pelvis, such as scioliorachitic pelvis or just-minor pelvis, Cesarean section is the operation of choice.

DR. HART (closing): There is just one point I did not speak of in my paper which Dr. Ball has brought

out, and that is not to apply forceps before dilatation is complete. Of course, we cannot have the second stage of labor before the first, and no matter what procedure we may attempt we cannot accomplish it. The head cannot pass through the cervix until the cervix is opened, whether we use forceps or the natural forces; and Dr. Ball said he prefers Cesarean section in cases of marked deformity of the bony pelvis. I agree with him that Cesarean section is indicated in those cases in which vaginal delivery is impossible, but under ordinary circumstances we find a considerable percentage of cases, seeing them first in labor, where a hospital is impossible of access, and it is also impossible to secure trained assistance to aid in the work. Under those circumstances the application of forceps is more likely to save life; and, while it is difficult to apply high forceps, I believe it is more likely to save life than Cesarean section in such cases.

## SUBCUTANEOUS ADMINISTRATION OF FRESH HUMAN BLOOD

BY PETER FREDERICK HOLM, M. D.

WELLS, MINNESOTA

For several years I have, in a number of cases, injected fresh human blood subcutaneously under various conditions and for different diseases with apparent benefit. The use of fresh human blood is of unquestioned benefit in many cases, but no doubt the difficulty and danger of its use intravenously has prevented its more general adoption by the profession.

While the use of citrated blood has done much to simplify the technic in the administration of blood intravenously, it is still too complicated and difficult an operation to be used by the general practitioner in the homes of his patients, when he is obliged to operate without much assistance. It is rather an operation to be performed in a well-equipped hospital where all conveniences are at hand. Even granting that he possesses the necessary skill and has sufficient assistance to do a venous transfusion of blood, the amount of work needed to find a safe donor for the patient and the tests which must be made for hemolysis and agglutination are practically prohibitive outside of a first-class laboratory. That the operation is not without danger has been frequently demonstrated and proven by different observers; and that, in spite of tests for hemolysis and agglutination having been made and proven negative, severe reaction may follow and even death result. Percy (*Surgery, Gynecology and Obstetrics*, 1915) reports 54 transfusions with toxic reactions in 3 cases in which hemolysis and agglutination tests were negative. Two of these cases

resulted fatally. Ottenberg and Kaliski (*Jour. of the A. M. A.*, December 13, 1913), in a paper based on 128 cases, report toxic reaction not referable to hemolysis and agglutination in ten per cent in all cases. Ottenberg and Libman, in 212 transfusions, collected from various observers, report 5 fatalities. Lindeman (*Jour. of the A. M. A.*, March 28, 1914) records 7 chills and reactions with related donors.

There may be other differences between the donor's and the recipient's blood, differences that cannot be demonstrated by agglutination and hemolysis tests.

The following hypothesis is advanced by Satterlee and Hooker (*Jour. of the A. M. A.*, February 26, 1916): "The possibility of a toxic disturbance in the circulation of the recipient by the introduction of blood which, though perfectly fluid, may nevertheless be undergoing incipient coagulative changes, due to the physical influences to which it is subjected in the process of transfer." In other words, it is perfectly possible that blood which appears fluid, be it citrated or otherwise, may have undergone changes that prevent it from mixing with the recipient's blood without causing undue disturbance to the circulation; and, if it is possible to introduce the blood into the system of the patient in such a way as to obviate those dangers and render comparatively simple what is otherwise a difficult and somewhat dangerous operation, and yet receive the benefit from the administration of said blood, I believe

human blood would be used in thousands of cases where it is now only used in comparatively few instances. Also, if any healthy donor could be used, and the tests for hemolysis and agglutination could be dispensed with, it would be possible for the general practitioner to avail himself of this much-neglected therapeutic remedy, and it would no doubt come into much more extensive use.

If, as I believe, the subcutaneous injection of fresh human blood will answer the purpose under many conditions, perhaps as well as it does in intravenous administration, a great step has been taken towards the solution of the problem of transferring blood from donor to recipient.

In many cases and diseases it may not be the great volume of blood that is needed by the patient, but rather small amounts injected frequently, causing a stimulation to the blood-forming tissues, which the patient already possesses. Volume alone can be supplied by a salt solution much easier and much safer; and it is entirely possible that the blood to furnish such a stimulus can, by injecting it subcutaneously, be furnished the patient just as well as, if not better than, by venous transfusion, and, without question, with much less danger to the patient's life. Furthermore, if the blood from any healthy donor, regardless of hemolysis and agglutination tests, may be injected subcutaneously without causing any dangerous results, but with much benefit to the recipient, it certainly simplifies what has heretofore been a difficult procedure. I have repeatedly injected a patient with blood from the same donor subcutaneously and without any reaction aside from slight fever,  $99^{\circ}$  to  $99.5^{\circ}$ , with perhaps a little malaise for a couple of days, and sometimes not even that; and then later transfused intravenously the same patient with citrated blood from the same donor, and had a very severe reaction (temperature,  $104.5^{\circ}$  or more with a severe chill that lasted an hour), so, while in this case the blood from the donor was perfectly harmless and beneficial when used subcutaneously, it was apparently toxic when injected intravenously.

It has been suggested by other observers that in some diseases like pernicious anemia small, oft-repeated doses of fresh human blood may have much more value than one large injection, and in such cases it seems that the subcutaneous method would be much to be preferred to the intravenous, owing to the relative freedom from

danger and its absolute simplicity of administration.

I have in a case of pernicious anemia, under frequent subcutaneous administration, seen the blood picture go from 30 per cent hemoglobin to 85 per cent, and the red-blood cells rise from 1,500,000 to over 4,000,000 in the course of a few months. I have, after a time without treatment, seen the patient relapse, and again improve when subcutaneous injections of human blood were resumed. It is possible that small, oft-repeated doses of blood administered over a long period of time might cause more permanent result in pernicious anemia, at least it would seem worthy of a trial.

If subcutaneous injection of fresh human blood was of no value in any other class of cases, it would seem to be a valuable procedure if all cases of pernicious anemia could have it tried, and as the technic of subcutaneous administration is so simple that any careful and competent physician and surgeon can make use of it, it should at least be given a fair trial.

The technic used is as follows:

Several glass syringes of two to four ounces capacity are used; they are sterilized by boiling, and connected to a good-sized needle with a short length of rubber tubing, with a slip-connection on the needle. A constricting band is placed above the elbow, and the needle is inserted into the most prominent vein at the bend of the elbow. The syringe is filled, separated from the needle, and another syringe attached. In the meantime an assistant injects the blood into the recipient's flank or abdominal wall, passing the needle deep into the subcutaneous tissues. From four to eight ounces of blood are generally used.

A somewhat more rapid and simpler method is to constrict the arm, making a puncture in the vein with a small scalpel. Hold the glass syringe under the blood-stream. Catch about two to four ounces of blood, insert the piston, and inject as before. Several syringes may thus be filled and injected in a few minutes.

Probably the blood could be injected under the breasts just as well, but I have always injected it under the skin of the abdomen and flanks. Careful sterilization of the skin with iodine and alcohol has been used on both donor and recipient. The needle punctures are sealed with adhesive plasters or collodion. Careful aseptic technic is used throughout the operation.

No infection or other untoward results have ever occurred. The rapidity with which the

blood absorbs is often quite astonishing, for, in a few days, aside from some tumefaction and a dark ecchymotic discoloration, nothing is to be seen, and the systemic disturbance is so slight as to be hardly worth mentioning in the majority of cases, often it is not even noticeable.

I have used the method in hemorrhage of the new-born, hemorrhage of gastric ulcer, splenomyeloid leucemia, and in pernicious anemia; and I would suggest, in addition, its trial in any case where the coagulability of the blood is low, and in cases where the blood-forming tissues of the body are at fault, and also in certain so-called idiopathic hemorrhages, in purpura hemorrhagica, and perhaps in certain typhoid fever cases. I have tried the subcutaneous injection of citrated blood, but can state no conclusion at this time, except that it is apparently not as readily absorbed as is the fresh undiluted human blood, and the addition of a foreign substance can surely not be of any advantage.

#### SUMMARY

A fairly large amount of blood (four to eight ounces or more) may safely be injected into the

subcutaneous tissues, and perfect absorption take place, if ordinary aseptic technic be employed.

That blood which apparently is toxic to the patient when used intravenously may nevertheless be injected subcutaneously without causing any undue reaction, and with apparent benefit.

That the subcutaneous method of injecting fresh human blood can possibly, in many cases, replace the intravenous, especially in cases where the stimulation of the blood-forming tissues is wanted, as in pernicious anemia, or where the coagulative principles of the blood are at fault, as in certain slow hemorrhages.

While I realize that much work needs to be done on the subcutaneous administration of fresh human blood, the method is nevertheless worthy of a trial by the profession, especially by those who are in a position to try it out on a large number of cases, and thus place the method where it belongs.

In the blood-work which has been done and in the experiments which have been made, upon which this paper is based, credit is given my associate Dr. F. E. Best, who has helped work out the technic, and checked up the results.

## ARSENOBENZOL IN SYPHILIS\*

By GEO. E. BROWN, M. D.

MILES CITY, MONTANA

Arsenobenzol is a product of the Dermatological Research Laboratories of Philadelphia, given to the medical profession by Dr. Jay Shamberg and his associates.

This laboratory has been engaged for over three years in research problems as related to dermatology. Chemotherapeutic problems have been attacked from various angles; and trypanocidal drugs have especially engaged their interest. Mercury, copper, arsenic, and the iodides have been carefully studied to determine their trypanocidal action; and, as this group of drugs did not exert any direct trypanocidal action, the attention of the investigators was then directed to the arsenobenzol group.

They succeeded in making a drug, which they named *arsenobenzol*, and which proved to be absolutely identical with the German drug *salvarsan*.<sup>1</sup> This was not only proved upon animals, but, after carefully determining the non-

toxic dose in humans, was tried out on a large number of patients suffering from syphilis in its various stages. The clinical result showed conclusively that arsenobenzol is equal in every respect to salvarsan, and in fact slightly less toxic. As salvarsan was not on the market, permission was granted to the "Research Laboratory" to supply arsenobenzol to physicians and hospitals having need of the same during the time salvarsan was off the market.

Dr. Ormsby, in the *Jour. of the A. M. A.*, makes a report of his experience with arsenobenzol, and his summary includes the statement that the American preparation is in every way the equal of the German drug.

Dr. Udo Wile, of Ann Arbor, has probably had the largest experience in the United States with arsenobenzol; and, in a personal interview with him, he stated that his experience with arsenobenzol was very satisfactory, and its action varied slightly, or none at all, from salvarsan. Dr. Wile was also using arsenobenzol in his intradural injections with good results.

\*Read before the Southeastern Montana Medical Society May 30, 1916.

<sup>1</sup> *Jour. of the A. M. A.*, Sept. 16, 1915. Report of the Council on Pharmacy and Chemistry.



My experience with the drug totals 40 injections in 22 cases given during the months of April and May, during which time salvarsan was unobtainable. These cases could be grouped into the following classes: 2 primary; 14 secondary; 5 tertiary, and 1 quaternary.

In the cases which presented open lesions the response to the drug was speedy and effective. One of the primary cases was perhaps the most spectacular. This was a man with a hard chancre on the glans, with secondary infection, ulceration, and phimosis. Thirty-six hours following the injection, the pain was relieved, and the swelling had subsided. In four days the ulcer had become clean, and healing was taking place. Healing was complete in eight days. This case had been under treatment for ten days previously with no improvement under usual applications.

This effective relief of pain was manifested in a woman, with an ulcer of the posterior pillar. Before the injection, swallowing was so painful as to cause tears. Twenty-four hours after an injection of arsenobenzol pain was entirely absent, and the ulcer was healed in three days.

The following case illustrates the efficacy of this drug very strikingly:

A young man, aged 26, came to me on account of chronic plaques on the lower lip, resembling flat warts. He also had a condyloma about the size of a large pea on the upper margin of the upper lip. He gave a history of having had a hard chancre nine years ago with a few months' internal treatment. The duration of the present lesions was about two years. This is a type of secondary lesion that is somewhat resistant to treatment; and a slow recovery was anticipated. He was given the fourth dose of arsenobenzol, with a very slight reaction following. In six days the lesions on the lip had disappeared; and the condyloma disappeared after the second injection.

I have had one severe reaction following the first injection in an early tabetic case. The symptoms were severe nausea and vomiting, headache, and an acute exacerbation of lancinating pains, which had been his most troublesome symptom. No reaction developed following the second in-

jection, but following the third the reaction was as severe as the first. Three of the cases presented very slight reactions, such as nausea, vomiting, and diarrhea. One case had a thrombosis of the basilic vein following the injection with no untoward results, however. Practically all the patients complained of severe pain in the arm and shoulder while the drug was being injected. This usually ceased a few minutes after the needle was withdrawn. This phenomenon had never occurred before in my experience with salvarsan.

The preparation of the drug for injection is practically the same as for salvarsan, except that arsenobenzol is slightly less soluble, necessitating the use of boiling water in dissolving the drug, and instead of 0.4 per cent salt solution, freshly distilled water is used as the solvent. The addition of an alkali is necessary, for an acid solution is formed upon the addition of water. The solution should be filtered through sterile cotton before injection, as many undissolved particles of the drug are usually present.

#### SUMMARY

1. Arsenobenzol is equal to the German preparation salvarsan as far as its symptomatic action is concerned.
2. Arsenobenzol is somewhat less soluble and slightly more irritating than salvarsan.

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## HEALTH AND HAPPINESS WEEK IN MINNEAPOLIS

Minneapolis has again been the first to develop a good idea. So far as known, no other city has grouped together in one collective demonstration all her health and welfare activities. From whatever point of view, it must be said that Health and Happiness Week was a success. The mere planning and organizing a week-long series of parades, speeches, exhibits, and picture-shows was an undertaking of no mean proportion; and those who accomplished the feat of carrying it out so well deserve great credit, as well as the thanks of the City's public. The willingness of each organization to merge its individual appeal with others engaged in differing lines for the public welfare shows the zeal of those who take up this kind of activity.

The greatest and also the most surprising feature of the week has been the public interest it has attracted. The exhibits have been well attended; speakers have been attentively listened to; literature distributed has been eagerly taken to be perused at leisure; and those in charge of exhibits speak of the intelligent desire to understand the ordinarily dry material of charts and diagrams on housing, hospitals, dietaries, et cetera.

If any proof were needed to show that the public was aroused on the subject of health matters, the attendance at the Auditorium on the evening of December 5th, the mass meeting held under the auspices of the Hennepin County Medical Society, would furnish it. The meeting was announced to begin at 8 p. m. Every seat had been filled before 7:45, and hundreds were unable to enter the building. An overflow meeting of more than one thousand was addressed by Dr. Gaylord on the outside of the Auditorium after he had finished his talk from the stage.

The week was educational to everyone engaged in it. The different organizations taking part learned the interrelation of their efforts. The visiting public found how disinterested are the efforts being made to better health and living conditions, and how earnest and well meaning are those who give time and money for welfare work. The whole week was another example of that spirit of mutual interest and brotherliness to which Dr. Cyrus Northrop alluded when he said that upon it depends the future peace of the world.

The list of departments or civic bodies taking part in Health and Happiness Week includes the Press Club; Associated Charities; the Anti-Tuberculosis Committee; the University of Minnesota by the House Economics Department, Dairy Husbandry, Eliot Hospital, and Department of Pathology and Bacteriology; the Minneapolis Dental Society; Minnesota State Board of Health; Central Council of Social Agencies; Y. M. C. A.; City Health Department; Y. W. C. A.; Minneapolis Civic League; Northeast Neighborhood House; Boy Scouts; Minnesota Federation of Women's Clubs; Board of Education; Woman's Club; Hennepin County Medical Society; Infant Welfare Society; Milk Commission; Visiting Nurse Committee; Minneapolis City Hospital; Ministerial Association; Woman's Welfare League; Housewives' League; Civic and Commerce Association; Baby Week Committee; and Trades and Labor Assembly.

Health and Happiness Week began with a parade on Friday afternoon, December 1st, a very unique affair. There were bands of music alternating with bands of outdoor enthusiasts whose banners proclaimed various ways of getting or preserving health by right modes of living. There were groups in floats showing how the children in open-air schools dressed at study, other groups of graduates from Hopewell Hospital and Glen Lake Sanitarium, which would

dispel any thought of gloom connected with those institutions. A camel appropriately bore the banner of Prohibition; and a delegation of St. Paul Winter Carnival Clubs in costume were also in line. There were two striking groups, one a number of young women on horseback in white costumes bearing the Red Cross insignia, not unlike Ku Klux dress, the other a marching group dressed in red, which formed the characteristic figure of the double-armed cross used in the Anti-Tuberculosis campaign.

From this on through the week a most comprehensive program of talks and demonstrations relating to public health and hygiene, dietetics, and how to use the organizations and departments was carried on every day until Friday evening, December 8th.

From an educational point of view the exhibits in the Pence Show Room and the Walker Art Gallery were very successful. Here were attractively placed charts, photographs, and real apparatus, with persons in charge to answer questions and explain the exhibits. That of the City Hospital is deserving of special mention as being the only thing of its kind to show the public the equipment and workings of a complete modern hospital. Here were shown the staff system, the route of a patient from admission to discharge, the laboratory department, the social service department, the contagious disease department, and Hopewell and Lymanhurst. Nurses demonstrated the Pasteur technic, as well as the routine hospital procedures. The Minneapolis Dental Society in its exhibit also made a most convincing argument for free dental clinics.

It is to be regretted if everyone did not visit and study the House Economics display. Here Professor Berry had shown, not only the relative values of different foods, but their cost, as compared with food value. As a matter of fact, the above are only samples of the uniform excellence and value of all the exhibits. It is to be hoped that in some way their lessons may be preserved.

It is said that Health and Happiness Week may be repeated next year, a plan we heartily endorse.

After all, the interest shown by the public in Health and Happiness Week is the measure of its success. While not susceptible of proof, it may be reasonably stated that the public has appreciated and taken to itself, usually by selective impressions, many suggestions which will result in betterment of various sorts. The contagious enthusiasm of a movement of this kind awakes interest when interest has become lethargic

through even repeated lesser appeals. The collective large demonstration of all Public Welfare activities is a success, and we may expect to see the example of Minneapolis followed by other cities.

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#### SMALLPOX AND MEDICAL FREEDOM

In two cities of Minnesota smallpox is now epidemic, but the people of Minnesota have medical freedom, which seems much more precious to them than immunity from smallpox. They seem to say as between smallpox and compulsory vaccination, we prefer smallpox.

The history of the disease in Minnesota for the years 1913, 1914, and 1915 furnishes some interesting, but apparently not very convincing, data. Of the large number of cases recorded in those years one and one-half per cent had been successfully vaccinated within seven years prior to sickness, and six per cent had been vaccinated over seven years prior to the attack of smallpox. This leaves ninety-two and a half per cent who had never been successfully vaccinated, but they had enjoyed perfect freedom.

The eagles of 92.5 per cent of Minnesota's intelligent population scream, Give us freedom, even though we have smallpox with it! We say, Amen! if the smallpox will attack only the creators of the public opinion that demands freedom.

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#### JEALOUSY IN A MEDICAL FAMILY

It is rare indeed that a man practices medicine successfully, that is, achieving a fair degree of financial success, acquiring an honorable name as a legacy to his posterity, and himself enjoying the good-will of thousands of patients—it is rare indeed that such a man does not desire his favorite son to become a physician. But sometimes a favorite son will eclipse even such a father at all points in his successful professional career. If he does this before the "old man" is ready to retire, either profound admiration or very green jealousy will grip the "old man." This is human nature.

Now, we know of just such a career of father and son, and we are wondering how the "old man" is going to take his possible eclipse. We have seen the "crisis" approaching for a long time, and we shall watch the countenance of the parent very closely, in order to detect his self-revealing symptoms. We are now going to call our readers in as consultants, for the case is really a dangerous one.

The father is the Minnesota State Medical As-



sociation, whose great success no one can gainsay; the child is the Southern Minnesota Medical Association, and his latest exhibition of virility was given at Mankato on December 4th and 5th,—a meeting that very nearly approached the ideal medical meeting. The interest, the prevailing good will, the number present, the character of the men on the program, and the kind of subjects treated, were a great credit to this Association; but we shall not attempt to compare it with any recent meeting of the State Association for fear of at least some controversy.

Has the parent Association good reason to be proud or jealous of this member of its family because of threatened—or accomplished?—equality or superiority? Decidedly, Yes. We leave it to our readers to determine as to which emotion prevails in the "old man's" bosom.

#### ANOTHER CLEAN COUNTRY PAPER

There are doubtless many papers scattered throughout the Northwest which are living up to high ideals in advertising; and among them is the *Dawson Sentinel*, of Minnesota, edited by Mr. Theodore Christianson, who was chosen at the recent election a representative in the Minnesota State Legislature, and has been prominently mentioned as Speaker of the next House. To be sure, a good many other men have been prominently mentioned, but it would be a great compliment to Mr. Christianson if he should attain that high office.

The above is suggested by the fact that some traveling optician who is flitting about the country fitting spectacles upon near-sighted and far-sighted people, was unable to get his advertising matter in the *Dawson Sentinel*. The traveling optician sent out postcards, stating that he editor of the *Sentinel* was violating the law by refusing to accept certain kinds of advertising. The editor replied by saying that there are three kinds of advertising that his paper has not accepted for three years, namely, whisky, traveling doctors, and mail-order houses. In doing this he is really doing the public a great service, and he suggests very wisely that most traveling doctors are fakers, that all whisky is poison, and that mail-order houses are community destroyers.

A man with such ideas ought to have abundant opportunity to express himself, and he ought to be in a position where his voice is heard by thousands, instead of hundreds. Many other papers have adopted this radical advertising policy, and take only what is really of service to people, regardless of the material which is presented to

them for pay copy. This policy may not always pay in money, but it pays in the sense that one always has a clean taste in his mouth, that he is doing something which is constructive, and that he is eliminating many things that are destructive. Medical journals have found this out, and they are beginning to right themselves before the medical public.

THE JOURNAL-LANCET has always taken a firm stand against the traveling pseudomedical quack; and, if all the newspapers in the state would adopt the plan of the *Dawson Sentinel*, none of these fakers would get very much out of their unethical methods.

#### CHEAP ADVERTISING, AND HOW TO AVOID IT

A correspondent writes of the annoyance occasionally given him when he hears a doctor's name called in a public meeting, even in a theater, to respond to a supposed case of "life or death." Our correspondent says this cheap trick is still as common as the age-old tricks of defrauding harvest hands and lumber-jacks.

It is always proper, and often quite necessary, that a physician be called from a public meeting; but there is a better way than calling his name from the platform.

Our correspondent suggests that when a physician deems it necessary to have an office or home call follow him to a theater or other public gathering, he leave with the proper person at such gathering—the office, in case of a theater—his seat number, so that he can be quietly notified.

These offenses against good taste reflect upon the whole profession; and it is therefore well for men who would disdain to seek the notoriety that a public call gives to take proper precaution against such a call.

#### BOOK NOTICES

THE ART OF ANESTHESIA. By P. J. Flagg, M. D. 136 illustrations. Philadelphia: J. B. Lippincott Company. 1916. Price, \$3.50.

This is one of the best books that the reviewer has had the pleasure of reading upon this subject. The author is evidently not afflicted with the "compilation" habit. There is a personal element throughout the book which gives it a decidedly original caste.

Important points are accentuated in the book, making the work of great value in a practical way both to the beginner in and to the teacher of this subject. The work shows a humane interest on the part of the author in the patient, which is all too unusual, especially in all

classes of individuals who are associated with surgical operations, not excepting the professional anesthetist.

The short chapter entitled "The Point of View of the Patient" should be read by everyone who is interested in surgical anesthesia from any angle.

Altogether the work may be considered a very safe guide for those who are interested in this very important subject.

—FARR.

**SEX PROBLEMS OF MAN IN HEALTH AND DISEASE.** By Moses Scholtz, M. D. Cincinnati, Ohio: Stewart and Kidd Company, 1916.

This little book, intended for the laity, is a simple exposition of the matter usually contained in a volume on venereal diseases.

The opening chapters are devoted to a discussion of sexual matters with a brief account of the anatomy and physiology of the genital organs. The later chapters cover gonorrhea and its complications, functional sexual diseases, and syphilis.

The author is to be congratulated on leaving out all discussion of morals, and for confining himself to a simple narration of facts with very little interpolation of personal opinions.

—IRVINE.

**GENERAL SURGERY.** By John B. Murphy, M. D. (Series 1916.) Chicago: Year Book Publishers. Price, \$2.00; price of series of ten volumes, \$10.00.

Like its annual predecessors, this volume is of the utmost value to one who desires to acquaint himself with the latest of worth in everything pertaining to general surgery.

It is to the great credit of the late lamented editor that he has, as he does here, always succeeded in selecting such articles for review as best marked the progress of surgery, both as to new ideas and improvement in results.

In these and other regards, the present work attains the eminence and maintains the high standards so well set before it by former volumes.

—ROBITSHEK.

**THE EYE, EAR, NOSE AND THROAT.** Edited by Casey A. Wood, C. M., M. D., D. C. L., Albert H. Andrews, M. D., and George E. Shambaugh, M. D. Series 1916. Chicago: The Year Book Publishers. Price, \$1.50; price of series of ten volumes, \$10.

This is a review of the papers, monographs, etc., dealing especially with the relation of the focal infections to the eye diseases, in particular with the intra-ocular affections as a possible result of tonsillar, dental, and intestinal toxemias.

There are 188 pages devoted to the eye. Much of this literature is devoted to reports on military subjects, injuries to the ocular apparatus, etc. There are 67 pages devoted to the ear, and 104 pages devoted to the nose and throat.

The book as a whole is an excellent review.

—WOOD.

**PHARMACOLOGY AND THERAPEUTICS FOR STUDENTS AND PRACTITIONERS.** By Horatio C. Wood, Jr., M. D., Professor of Pharmacy and Therapeutics in the University of Pennsylvania. Second edition (enlarged and improved). Price, \$4.00. J. B. Lippincott Co. 1916.

The scope of subjects included in this volume of over four hundred pages covers pharmacology, which includes materia medica, pharmacy (the preparation of drugs), and pharmacodynamics (physiological action of drugs).

To discuss all these topics the author has been compelled to write briefly, in many instances too briefly for detailed or even satisfactory study; but it has been concisely and more or less explicitly done. The book will serve well as a hand-book, both for students and practitioners who are looking after principles. The practitioner who wishes hurriedly to consult some author for suggestions in therapeutics in particular cases will find in larger works on therapeutics something more to his liking, if, peradventure, less rational.

This may be illustrated by the article on digitalis. This is a scientific study of the action of digitalis both physiologically and in pathological conditions. Even a careful reading of this article will not unlikely suggest to the average practitioner that the use of this drug requires a keener discrimination than he is capable of, and might lead to the conclusion that, valuable as the remedy is in properly selected cases, it is too risky to tamper with it very generally; and he would not be very far from being correct, as its effects are now generally understood.

This is a fine book, and is gotten up mechanically in the best of form. Its price is very reasonable as book prices go these days.

—STUART.

**AUTOPLASTIC BONE SURGERY.** By Charles Davison, M. D., and Franklin D. Smith, M. D. Philadelphia: Lea and Febiger, 1916.

This is a well written book upon a timely subject, supplementing a recent book on a similar subject by Albee. The work ought to be in the possession of every surgeon attempting to use osseous autographs.

A study of this book demonstrates that not everything regarding bone-regeneration is known at the present time. Some of the special technic is particularly interesting, as it differs in small details from that of Albee.

—GEIST.

**INTERNATIONAL CLINICS.** Vol. iii, 26th series. Philadelphia: J. B. Lippincott & Co. 1916.

The leading article in this number is by Henry Tucker, M. D., of Philadelphia, on "Gonorrhea in the Male," which the writer says is a "review written for the physician in general practice who is occasionally obliged to treat gonorrhea." It is said to be drawn from "many text-books and the abundant sources at the writer's command."

The treatment of obesity with special reference to the Nagleschmidt-Bergonis method, by B. B. Vincent Lyon, M. D., of Philadelphia, will commend itself to those physicians who may undertake the management of these cases, as the most safe and sensible method to be pursued.

"The Medical Uses of High-Frequency Currents," by Frederick DeKrafts, M. D., of New York, is valuable, because it contains a history of the development of these currents, and also the practical application of these valuable but too-much neglected remedial agencies. Physicians attempting their use will do well to read this article. Dr. DeKraft is experienced in this line of work.

Four articles illustrating the uses and value of roentgenology in diagnosis are included in this number.

The historical sketch of "Armand Trousseau, a Master Clinician," by Fielding H. Garrison, M. D., of Washington, D. C., is perhaps the most interesting article in this number of the Clinics. The medical profession should interest itself to become more familiar with the lives of

the great masters to whom it is so greatly indebted on account of their invaluable contributions to medical progress.

This volume maintains the usual excellency of this valuable series. The whole series makes a handsome addition to any library. The paper and binding are always good.  
—STUART.

COLLECTED PAPERS OF THE MAYO CLINIC, 1915. Rochester, Minn. Octavo of 983 pages, 286 illustrations. Philadelphia and London: W. B. Saunders Company, 1916.

The seventh volume of collected papers of the Mayo Clinic contains many valuable contributions, some of them from men, now associated with the Clinic, who have shown much pains-taking effort to add to the reputation these annual productions have created. The papers are grouped under the headings of the "Alimentary Canal," "Urogenital Organs," "Ductless Glands," "Head, Trunk, and Extremities Technic," and "General Papers."

One feature of this volume is the emphasis put by Rosenow, C. H. Mayo, and other contributors upon infection as the cause of disease of the various organs of the body, notably the production of ulcers of the stomach.

Carmen demonstrates the utility of the x-ray in the diagnosis of gastric and duodenal ulcer and of cancer.

The consideration of special problems in relation to gastro-intestinal and gall-bladder disease is taken up by the Mayos, Balfour, and Beckman. These articles are well illustrated, and are important contributions.

Diseases of the urogenital organs are discussed by Braasch, Thomas, Judd, and W. J. and C. H. Mayo.

Papers on "Bone Surgery," "Intratracheal Anesthesia," "Shock," and "Hemorrhage" also appear in the volume.

The classification of neoplasms as suggested by McCarthy seems reasonable.

In a paper on "Necropsy as a Public Service," Wilson urges more frequent post-mortems as an aid to more accurate diagnosis.

Ductless glands come in for much consideration, that of goiter being most prominent. The papers by Wilson and Kendall devote considerable space to the consideration of the iodine content of the thyroid. The tables attached to the articles show much study.

In view of the discussion in relation to the spleen and its surgical importance in connection with anemia, the papers and reports of the cases are very interesting.

Space does not allow a detailed review of the many excellent papers within this volume; and to attempt a full report of their merits would require an expert in each special subject written upon, for some of the papers are very technical and show a vast amount of work and scientific study by their authors. The general scope of the papers is so conclusive as to make the work of great value to certain specialists, general practitioners, internists, and surgeons. The papers represent to a great extent the progress made during the past year along the lines considered in the respective articles, and therefore serve as sign-boards to the rest of the medical profession, here and abroad. It is a valuable reference book for many a practitioner.  
—BENJAMIN.

## REPORTS OF SOCIETIES

### MINNESOTA ACADEMY OF MEDICINE

The Academy of Medicine held its regular monthly meeting at the Town and Country Club Wednesday, November 8.

Following the usual dinner the regular monthly meeting of the Academy for November was called to order by the president, Dr. Colvin.

Not all of those present had heard of the very recent death of Dr. E. H. Beckman, when Dr. H. B. Sweetser moved that some action be taken at once with reference to the funeral, which was to be held the following day at Rochester. It was moved that the secretary be instructed to send flowers and a message to the bereaved members of the family. (This was done early the following morning.)

Dr. Leavitt reported a case of prolapsus of the cord that he dealt with successfully by means of Cesarean section. A primipara, about 22 or 23 years of age, estimated to be between two and three weeks short of full term, fell in labor in the evening. She was brought to the City Hospital a little after midnight. The amniotic sac ruptured soon afterward. When examined by Dr. Wehr a foot was found presenting and the cord prolapsed. Over the phone he was advised what to do in the interim of delay. Dr. Leavitt reached the hospital seventeen minutes later. The husband was consulted, and his consent was gained to do whatever was thought best. The patient's general condition was good; and labor had only begun. The os uteri was open to the size of a silver dollar, the cervix not very dilatable. A loop of pulsating cord lay in the vagina. A foot could be palpated. During the interim of getting things ready—it will be remembered that the hour was past midnight—the foot of the bed was elevated, and enough chloroform given to check labor. The cord was palpated, and the fetal heart listened to at intervals to make sure that the woman should not be subjected to operation in vain. With the patient in the Trendelenburg position there was little fear of impinging the cord between the pelvis of the mother and the presenting parts of the child, so that no haste after she was once on the operating-table was necessary. A living child was delivered, and both the child and its mother left the hospital in due time.

The first paper of the evening, "Acute Inflam-



mation of the Neck of the Femur," was read by Dr. J. E. Moore. Drs. Gillette, Corbett, Schwyzer, Geist, and Colvin joined in its discussion.

Dr. J. E. Hynes' thesis, "Paroxysmal Tachycardia with Report of Two Cases," followed, which, also, was thoroughly discussed.

Thirty-five members and two visitors were in attendance.

FRED E. LEAVITT, M. D.,  
Secretary.

## THE MINNESOTA NEUROLOGICAL SOCIETY

The Society held its first meeting, September 19, 1916, at the residence of Dr. Arthur Sweeney.

Case-reports were presented by Drs. Hamilton, Ball, and Hammes.

Dr. Hamilton reported three cases of neurofibromatosis, or von Recklinghausen's disease.

CASE 1.—Male, aged 47. Family history, negative. For several years has noticed the gradual development of a series of small lumps beneath the skin, mostly around the chest, but to some degree over the abdomen and extremities. About a year and a half ago the patient first noticed adventitious sounds in one of his ears, with subsequent diminution of hearing, so that at present he hears scarcely anything in this ear. Recently his other ear has become involved in the same way. The nodules on the body are movable and tender to pressure.

CASE 2.—Female, aged 31, single, nurse. For four or five years she has suffered from pain in the left arm. Associated with this pain has been the development of groups of nodules along the course of the nerves. These nodules have been excised twice. One nodule subjected to histologic examination showed typical neurofibromatosis formation.

CASE 3.—Male, aged 40, single. The patient is a hydrocephalic imbecile. It is impossible to determine the exact date of onset of his trouble, but at least for the past ten years he has slowly developed a series of nodular growths located especially about the chest, but involving also the abdomen and thighs, and the arms to a limited degree. These nodules vary in size, are fairly freely moveable, and are painful to deep pressure. The patient's father had a similar condition.

A fourth case was reported in which the localized growths were along the superficial vessels and seemed much like varicose nodules.

Dr. Ball presented two cases as follows:

The two cases, which I have to report, in some features show a similarity; in others, quite a contrast. Both of them are cases of injury to the brain and its membranes; and therein lies the similarity. In one, the head injury was operated on shortly after it happened, and a complete disappearance of all symptoms occurred; in the other, there was no operative treatment until several years after the injury, with a permanent hemiplegia and epileptic attacks as a consequence; and therein lies the contrast.

CASE 1.—Baby D., aged 1½ years; seen in consultation August 22d, with Dr. Gradzek. On August 16th this baby fell from a second story window on its head;

and after the fall was unconscious for forty-eight hours. When I saw the baby it was apparently conscious and was able to take nourishment. On palpation of the head, no contusion or skin injury was found, but firm pressure back of the left ear elicited slight crepitation; temperature, 102°; pulse, 70. There was a partial paralysis of the right arm and leg; the Babinski was also present on this side. About every half hour the baby had an attack of epilepsy of the Jacksonian type, involving the right side of the face, also, the right arm and leg. An x-ray of the baby's skull showed a fracture on the left side just behind the ear, running pretty well up towards the middle with a bulging of the whole skull in this region. Decompression was performed by Dr. Robert Earl. A clot about one-quarter inch thick and as large as the palm of one's hand was found covering almost the entire left side of the brain. In addition to this, the entire brain was swollen and edematous, and where the line of fracture was enlarged by decompression it bulged into the opening, so that in closing the wound it was impossible to close the dura, and very difficult to bring the skin together. This bulging slowly subsided over a period of three weeks. Only two convulsions were observed the day after the operation; and there have been none since, and the baby apparently uses his right arm and leg as well as the left. The Babinski sign has disappeared.

CASE 2.—Baby H., female, aged 4 years; seen August 22, 1916; referred by Dr. Eklund, Duluth. The child was a full-term baby, delivered by instruments, after a long and tedious labor. Two days after birth she began having convulsions; and these have continued more or less regularly ever since. The attacks were Jacksonian in character, and involved the entire right side, which was also partially paralyzed. The baby learned to talk at about the right age, but still is unable to walk without help. In July these epileptic attacks began coming every half hour; and in the week preceding August 22d they came every few minutes. For a week the free interval between the attacks was so short that it was impossible to give the baby any nourishment in the natural way.

On August 23d an attempt was made to operate on the baby with the intention of exposing the motor cortex on the left side, and removing, if possible, the irritation, which, according to the symptoms, seemed to be located there. Shortly after the commencement of the anesthetic the baby's condition became so bad that it was thought best to postpone the operation for several days, and try to give the little patient nourishment through a stomach-tube in order to improve her strength so that she would be better able to stand the operation. This was done, and on August 26th the operation was performed by Dr. Robert Earl. A bone flap was made over the motor area, the dura opened, and the brain exposed. The brain in this region presented a spotted appearance. There were a number of white indurated areas, the size of a half dime, caused by injury and hemorrhage at the time of birth. It was not possible to remove these areas of degeneration as they usually extend deep into the brain. The most feasible thing to do, under the circumstances, seemed to be the removal of a portion of the cortex, and thus lessen its excitability to reflex irritation. The motor centers for the arm and leg were ascertained as well as possible by means of a faradic current, and this area of the cortex, to the depth of one-quarter inch, was removed. The baby had

two convulsions the day following the operation, but has had none since. She made a good recovery from the operation, and has about the same degree of paralysis in her arm and leg at present, September 28th, as she had before the operation. The length of time since the operation is, of course, too short to say that the removal of the cortex has permanently relieved the epilepsy. We can at present only hope it has done so, and watch the further course of the little patient with a great deal of interest.

These two cases demonstrate very clearly the marked difference in the clinical course and end-results when a brain clot is removed and when it is allowed to remain. If evidences of brain injury were carefully looked for after difficult labor and forceps deliveries in the newborn, and proper treatment given when found, I believe many cases of permanent paralysis in children might be prevented.

Dr. Hammes made the following report of a case of cerebellar pontine angle tumor, dating back for twenty-four years:

Patient: female; married, 50 years old, seen in consultation with Dr. Plondke, on August 3d, 1916. Family and personal history, negative; five children living and well; no miscarriages.

Present complaint: About twenty-two years ago, the patient noticed ringing and buzzing in the left ear, which gradually became more marked. About one year later, hearing became lost in the left ear. A short time afterwards she developed a similar buzzing in the right ear, and at present her hearing is somewhat impaired in that ear. About fifteen years ago, she noticed an occasional twitching of the left lower eyelid and mouth. This gradually became more marked. Within six months there developed a weakness of the left facial muscles, and within one and one-half years the left face was completely paralyzed. Aside from her impaired hearing and left facial paralysis, she continued in fair health until one year ago, when she noticed some difficulty in walking. She would make an occasional misstep, with a tendency to fall to the left. This gradually grew worse, and for the past four months she has been unable to walk without some aid. She staggers when attempting to walk. About six months ago she noticed occasional diplopia, which has become permanent during the past six weeks. Her eyesight has been gradually failing, especially during the past year. Since early spring she has had occasional dizzy spells and vomiting, especially in the early morning. Her main complaint at present is a persistent headache in the mid-parietal region, which began about six months ago and is gradually growing worse. She states: "It feels as if something wanted to grow out of the middle of my head, and that gives me constant pain." She has lost about twenty pounds in weight during the past year.

The physical examination was negative.

The neurological examination showed the following:

Pupils equal and respond to light and accommodation. There was marked bilateral vertical nystagmus, a paralysis of the left abducens; the left corneal reflex was abolished, but present on the right. There was some tactile impairment on the left side of the face. There was complete left facial paralysis of the peripheral type. Hearing was completely lost on the left side and impaired on the right. The patient could only hear when one shouted into the right ear. The other cranial

nerves were normal. There was a marked Romberg, with a tendency to fall to the left and backward. When attempting to walk with her eyes closed, she staggered to the left. There was ataxia of the left arm and left leg. There was marked adiadochokinesis of the left arm. There was no loss of muscle strength anywhere, but the left lower extremity seemed hypotonic. The deep reflexes were normal throughout, except that both knee-jerks were increased. There was no Babinski or ankle-clonus present. There was no sensory disturbance. The backgrounds of the eyes showed a secondary optic atrophy; hemoglobin, 78 per cent; r.b.c., 4,120,000; leucocytes 11,800; blood pressure 175; urine, normal.

A diagnosis of a left cerebellopontine angle tumor, probably fibroma, was made, and an operation advised. The patient returned home, expecting to return after a month or so, for the operation.

E. M. HAMMES, M. D.,  
Secretary.

#### THE KATONA MEDICAL SOCIETY

At the first annual meeting of the Katona Medical Society, which comprises the territory of Divide, Williams, McKenzie, the West half of Mountrail Counties in North Dakota, and the East half of Sheridan and Richland Counties of Montana, the following officers were elected: President, Dr. C. S. Jones, Williston, N. D.; vice-president, Dr. H. T. Skovholt, Williston, N. D.; secretary-treasurer, Dr. Thos. J. Strong, Williston, N. D.; censor for year, Dr. P. O. C. Johnson, Watford, N. D.; censor for 3 years, Dr. N. C. Windel, Williston, N. D.

An enthusiastic meeting was held at Williston on November 21st by the majority of physicians of the city. Live issues were discussed; and a program of scientific papers, talks by business and professional men of the city and state, clinics, and interesting meetings for every physician in this territory are to be provided.

The secretary has sent out invitations to 47 doctors in this district, and it is expected that most of them will avail themselves of this opportunity to join a live and progressive medical society, as Williston is the medical and surgical center of a large area; and a new \$60,000 hospital will soon be erected there, which will compare with any from the Twin Cities to Spokane.

THOS. J. STRONG, M. D.,  
Secretary.

We extend congratulations to this new society, and we hope that not one physician in the territory will remain outside of it to lessen its possibilities for good by his absence or by the implied criticism of his absence. A medical society does so much for the community in which it is located, as well as for all physicians in the community that no physician has a right (inalienable or otherwise) to remain outside of it.—  
THE EDITOR.

## NEWS ITEMS

Dr. W. F. McCarthy is moving from Adrian to Delano.

Williston, N. D., is raising money for a new \$60,000 hospital.

Dr. Julia J. Keats has moved from Mandan, N. D., to Almont, N. D.

Dr. S. D. Henderson, of Hamburg, N. D., has moved to Kenmare, N. D.

Dr. Ferdinand Gramenz, of Albert Lea, is spending six weeks in Los Angeles, Calif.

Dr. Daniel McCann, of New York, has entered into partnership with Dr. Rowland Gilmore, of Bemidji.

Dr. F. E. Leavitt, of St. Paul, was married on November 28 to Miss Bessie Margaret Row, also of St. Paul.

Dr. Julian F. DuBois, of Sauk Center, was married to Miss Katherine Mattocks, of Chicago, on Thanksgiving afternoon.

Dr. H. O. Fjelde has returned to Fargo, N. D., after completing an eight weeks postgraduate course in the Lying-in-Hospital of New York City.

Over twenty-five thousand pupils in the St. Paul public schools were examined by school nurses, and thirty-one hundred were given treatments, in October.

Dr. J. H. Saan, formerly of the More Hospital staff at Eveleth, but recently of Iowa, has returned to Eveleth after doing postgraduate work in the diseases of children.

The Clay-Becker County Tuberculosis Sanatorium was opened to the public on December 3. The institution will accommodate thirty-two patients, and the building cost \$52,000.

The Minnesota State Board of Health is to supply, temporarily at least, a nitrate-of-silver solution to physicians and other attendants in confinement cases to prevent baby blindness.

The new Marthy G. Ripley memorial building for the Maternity Hospital of Minneapolis was dedicated last week. It is a beautiful structure, and adds twenty-five rooms to this admirable hospital.

Health Week took Minneapolis by storm, and some of the meetings seemed like a "Billy Sunday" revival. No hall in the city was big enough to accommodate the crowd gathered on the principal evening.

Dr. L. C. Weeks, of Detroit, has been appointed a member of the Minnesota State Board of Medical Examiners in place of Dr. Theodor Bratrud, formerly of Warren, Minn., but now of Grand Forks, N. D.

Dr. W. E. Comb has resigned his position as instructor in anatomy in the University of Minnesota to become assistant to Dr. Horace Newhart, of Minneapolis. Dr. Comb has just completed postgraduate work in eye, ear, nose, and throat in New York City.

At the annual meeting of the Ramsey County Society, held last month, the following officers were elected, all of St. Paul: President, Dr. J. T. Christison; vice-president, Dr. Robert Earl; secretary-treasurer, Dr. C. E. Smith; necrologist, Dr. Leroy Brown; trustee for five years, Dr. Burnside Foster (re-elected).

Dr. Egerton L. Crispin, who has been on the Mayo Clinic staff for the past three years, has moved to Los Angeles and become associated with Dr. Dudley Fulton and Dr. Roland Cummings of that city. Their work will be general diagnosis and internal medicine. The firm name is Drs. Fulton, Cummings & Crispin.

The physicians of Faulk and Warren Counties, S. D., have formed the Faulk and Warren County Medical Society, holding meetings in Faulkton the first Thursday of each month. Dr. J. J. Mertens, of Gettysburg, is president; Dr. F. L. Mitchell, of Orient, vice-president; and Dr. David Carson, of Faulkton, secretary and treasurer.

The annual meeting of the Southern Minnesota Association, held at Mankato on the 3d and 4th inst., was attended by over four hundred physicians, and all present gave unstinted praise to the officials and program committee *responsible* for this great meeting. Officers for the current year were elected as follows: President, Dr. Aaron F. Schmitt, Mankato; first vice-president, Dr. F. C. Heise, Winona; second vice-president, Dr. R. G. Olson, Nicollet; secretary, Dr. W. T. Adams, Elgin; treasurer, Dr. G. F. Merritt, St. Peter. The mid-winter meeting will be held at Faribault.



## NORTH DAKOTA PRACTICE FOR SALE

A North Dakota practice of \$3,000, with office furniture and equipment, is offered for \$600. Will give thorough introduction. Address 435, care of this office.

## EXCELLENT OPENING FOR SURGEON

An eye, ear, nose, and throat man and a general practitioner desire a competent surgeon to become associated with them in an outlying district of Minneapolis. Address 436, care of this office.

## OFFICE FOR RENT

I wish to rent my fully equipped office in an outlying district of Minneapolis. I have a down-town office, and would need the other but three nights a week. Rent cheap. Address 426, care of this office.

## OFFICE FOR RENT

In a modern fireproof building located at Hennepin and Franklin Avenues, Minneapolis. Offices have an anteroom adjoining a dentist's office. Inquire at Holman-Gerdes Co., 1936 Hennepin Ave., Minneapolis.

## ASSISTANTSHIP OR PARTNERSHIP WANTED

By graduate of a Class A school, age 34, married, no children. Five years surgical training. Full surgical equipment. Special training in laboratory work. Licensed in Minnesota. Address 423, care of this office.

## OFFICES FOR RENT

A suite of 5 rooms, artistically arranged and decorated, suitable for a physician or dentist, will be for rent in the Essex Building, Nicollet and Tenth Street, shortly after Jan. 1. Rent, \$35.00. Address 437, care of this office.

## BOOKS AND INSTRUMENTS FOR SALE

The medical library, consisting of 200 volumes, and a collection of surgical instruments belonging to the late Dr. J. B. Gould, of Minneapolis, are being disposed of and may be seen at 3217 Nicollet Ave. N. W. Phone, South 383.

## MISSIONARY HOSPITAL WORK IN INDIA

A qualified medical man required who is in sympathy with religious work is wanted. Passage paid, and a small monthly allowance made. Three years agreement. Apply, sending copies of testimonials, to Commissioner Thomas Estill, Salvation Army Headquarters, 108 N. Dearborn Street, Chicago.

## APPARATUS FOR SALE

An F. A. Hardy refraction set in excellent condition. Address 436, care of this office.

## X-RAY OUTFIT FOR SALE

Because of a change of location I desire to sell my Scheidel-Western Special x-ray coil and high-frequency outfit; also a McIntosh Wall Plate and a Leucodescent Lamp. These may be seen in Minneapolis. Address 424, care of this office.

## PRACTICE FOR SALE

A good practice in a town of 1,200, mixed population, forty miles from Minneapolis; well-equipped office; all modern conveniences. Practice established 20 years. Collections A-I; good mileage; residence, optional. Address 428, care of this office.

## LOCUM TENENCY WANTED

By 1914 graduate; eighteen months' internship at City and County Hospital, St. Paul. Can give best of references from men I have worked for. Can begin work at once for any length of time; prefer small town with little or no competition. Address 433, care of this office.

## POSITION WANTED BY SECRETARY-STENOGRAPHER

A refined, capable young woman, having had six years' experience in the office of a Minneapolis physician, desires to become permanently associated as stenographer-secretary with a physician in Minneapolis having a large practice. Initial salary desired, \$75. Address 427, care of this office.

## A GOOD CALIFORNIA PRACTICE TO EXCHANGE FOR ONE IN THE MIDDLE WEST

An eye, ear, nose, and throat specialist, with a \$5,000 practice in California would like to exchange locations with a man doing a like business in the same line in one of the smaller cities of the Middle West, Minnesota preferred. Family reasons compel me to make a change. Address 432, care of this office.

## DOCTOR

Doctor: If you want practical postgraduate work during the fine season in the delightful city, write for particulars. Thirtieth annual session opens September 25, 1916, and closes June 9, 1917. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

## PUBLISHER'S DEPARTMENT

### HEPCO FLOUR

The Waukesha Health Products Co., of Waukesha, Wis., claim that Hepco Flour is practically starch-free and contains considerably less than ten per cent of sugar, thus making it an excellent food for diabetics. This claim is confirmed by the analysis which they publish as made by the Connecticut Agricultural Experiment Station at New Haven, Conn. As this is a Government station, the claim cannot be doubted, and therefore the formula of the Hepco Flour commends this product to physicians.

### OBSTIPATION FOLLOWING OPERATION

There are many theoretical reasons why Interol should be of value to the post-operatively constipated patient; but the best reason is that it is of value.

The most gratifying thing about it is, that in most cases, while at first, the patient may need as much as 5i to 5jss of Interol per day, with time, he can *diminish* the dosage to as little as half an ounce a day, or an ounce every other day, and even discontinue Interol for periods of time.

In many cases, Interol is the last resort to avoid another use of the surgeon's knife.

### A DANGEROUS SUBSTITUTE FOR NEOSALVARSAN

The chief inspector of the U. S. Custom House at New York has called the attention of the medical press to the fraudulent sale of a compound of starch and table salt for neosalvarsan. Two Canadian swindlers engaged in this work have been arrested by the U. S. Government.

The stuff is put up in packages that are a clever imitation of the English package, but it is not sold in the round aluminum package in which neosalvarsan is put up by the German manufacturers for the American market.

### THE SEQUELÆ OF LA GRIPPE

Among all of the various acute and exhausting illnesses that afflict mankind, there is none that so generally results in distinct prostration as epidemic influenza, or La Grippe. Even the grippal infections which are uncomplicated or unaccompanied by serious organic changes are more than apt to leave the patient in a thoroughly devitalized condition after the acute febrile symptoms have subsided. It is for this reason that the treatment of La Grippe convalescence is of special importance. The anemic, debilitated, depressed patient requires a systemic "booster" that will not only stimulate but revivify and reconstruct. It is distinctly wise, in such cases, to commence vigorous tonic treatment as early as possible, preferably by means of Pepto-Mangan (Gude), the hemic builder and general reconstructant. This standard hematinic increases the vital elements of the circulating blood and, by increasing the appetite and improving the absorptive and assimilative functions, quickly restores both hemic and general vitality.

### THE RADIUM INSTITUTE

The efficacy of radium in the treatment of certain malignant, and in not a few benign, growths, is well established; but there are few men in private practice who find it either worth while to own the radium, or to spend the time necessary to become expert in its administration; therefore radium has hitherto been found in use mainly in hospitals. A special radium institute has been found necessary to meet the demands in Chicago, and one is now in successful operation there under the directorship of Dr. Frank E. Simpson with a council of seven well-known members of the Chicago profession.

In our opinion this is the best way to keep the use of radium out of the hands of quacks, and to give the profession confidence in its use.

We believe the Radium Institute, 59 East Madison Street, Chicago, is worthy the patronage of medical men who have cases to refer.

### THE OUTLOOK—A GREATER PAPER

*The Outlook* is a weekly journal "practically devoted to the service of lofty ideals." It gives me more pleasure, more information about the topics of the day, material and spiritual, and is more thought-provoking than any other of the score or more journals that I read. I think I like it all the more because I do not agree with much that it prints; in fact, no sane man agrees with all that it prints, for it has—to some people—a provoking way of giving a hearing to both sides of the leading questions of the day.

*The Outlook's* prospectus for next year is full of promise of even better work than it has done in the past; and this means, necessarily, an increase in price. After Feb. 1, 1916, the subscription price will be \$4.00 a year, instead of \$3.25.

If I were asked to make up a list of two or twenty periodicals, other than professional, for doctors, I would put *The Outlook* at the head of such list.

If any reader of this "appreciation" of the splendid magazine, is not familiar with it, sample copies can be had upon request to *The Outlook*, 287 Fourth Ave., New York City.

### A WIDELY USEFUL SOAP

There are a number of so-called antiseptic soaps. Probably the most generally serviceable of these is Germicidal Soap, formula of Dr. Charles T. McClintock, which has been not inaptly designated "the soap of a hundred uses"—a soap made from pure vegetable oils and containing the powerful antiseptic mercuric iodide. As indicative of the germicidal power of this soap it may be said that a solution of it containing one part of mercuric iodide in five thousand parts of diluent will destroy pus organisms in less than five minutes. It is undoubtedly the most available antiseptic for the general practitioner. There are no solutions to carry. The soap is always ready for use. It does not stain linen or tarnish polished instruments.

Some of the uses to which Germicidal Soap is adapted are these: To prepare antiseptic solutions; to sterilize the hands, instruments and site of operation; to cleanse wounds, ulcers, etc.; to lubricate sounds, specula and catheters; to destroy infecting organisms in skin diseases; to disinfect surface lesions; to control itching in skin affections; to make solutions for the vaginal

douche; to destroy offensive odors; to cleanse the hair and scalp and remove and prevent dandruff; to disinfect vessels, utensils, etc.; to wash and sterilize bed-linen used in the sick-room. It is apparent from the foregoing that the soap is at once an antiseptic, disinfectant, deodorant, sterilizer, lubricant and cleanser.

As most physicians probably know, Germicidal Soap, McClintock, is manufactured by Parke, Davis & Co. It is supplied in two strengths, containing, respectively, one per cent and two per cent of mercuric iodide. It is well to specify "P. D. & Co." when ordering from the

#### NEW HEAD FOR FRANK S. BETZ COMPANY

Considerable interest has been aroused in medical circles by the announcement of the election of Mr. Louis R. Curtis, for eighteen years superintendent and secretary of St. Luke's Hospital, Chicago, as president of the Betz Company.

It is stated that Mr. Frank S. Betz, the retiring president, continues with the company as Chairman of the Board of Directors.

Mr. Curtis was born in 1865 in Philadelphia. He obtained his college training at Stevens, graduating as mechanical engineer. In 1889 he entered the hospital field as assistant superintendent of the New York Hospital. During that period he attended medical college, not with an idea of practicing, but to better fit himself for his hospital work. From the New York Hospital, Mr. Curtis went to the General Hospital of Elizabeth, New Jersey, staying there for about one and one-half years. From there he came to St. Luke's Hospital, Chicago, as superintendent, and has been the dominating figure in that institution, both as superintendent and secretary, until recently, and is now vice-president in charge of the operation of the institution. During the last years Mr. Curtis has also been prominent as a consulting engineer, especially among hospitals, and has introduced many advanced and successful ideas in hospital construction and organization. His wide experience among hospitals and medical men, coupled with his technical training, makes him peculiarly well fitted for his new position.

Mr. Frank S. Betz, under whose control the concern bearing his name assumed its present proportions, will continue with the company as Chairman of the Board of Directors, and will give the organization the benefits of his long experience and training. His many and diversified interests are given as reasons for his retiring as active head of the Company.

#### THOMAS HOSPITAL, MINNEAPOLIS

Thomas Hospital, at the corner of 34th Avenue and Sixth Street South, is one of the pioneers to take up the cudgel against tuberculosis in the state of Minnesota.

It was built in 1908 by Mr. George H. Christian, of Minneapolis, and presented to the United Church Hospital Association, which was organized in 1907 for the purpose of erecting and operating hospitals in the city of Minneapolis.

The hospital is only a mile from the depots and the business portion of the city; yet its location is such that it is naturally in a "zone of quiet." Commodious grounds and its park-like surroundings make it an ideal spot for people suffering from tuberculosis. Its location, on a very high bank of the Mississippi, affords

the patients a commanding view of the river and the State University grounds on the opposite bank.

Thomas Hospital is a Lutheran institution, and is conducted on Lutheran principles; but it is strictly cosmopolitan in its practice. Patients of all nationalities and creeds are admitted and taken care of. Since its opening 1,675 patients have been taken care of by this hospital up to the 1st of December, 1916, and about one-half of these patients have been charity cases, whom the hospital has been able to take care of through the generosity of its many friends, who have contributed to its free-bed or charity fund. Lack of room is the only reason why any patient has ever been refused admittance to the hospital. It is the purpose of the management to continue this hospitable principle in full confidence that its friends and co-workers will continue to make Thomas Hospital their agent for their work of mercy in the future, as in the past.

This institution is also doing a valuable work of education in teaching patients and their friends how to care for themselves and protect themselves from this dread disease. The value of this phase of its work and mission cannot be emphasized enough. If people generally had more knowledge concerning tuberculosis, and would apply the knowledge in their lives, there would not be so many afflicted by the disease. Every patient leaving Thomas Hospital goes out as a champion for better and cleaner living, and so does his or her share in the now nation-wide campaign for ridding our nation of the white plague.

#### USELESS AND USEFUL ANTIDOTES FOR MERCURIC CHLORIDE POISONING

Dr. Bernard Fantus, professor of pharmacology and therapeutics of the Medical Department of the University of Illinois, has been conducting an interesting series of experiments upon rabbits to determine the value or lack of value of a large number of so-called antidotes for mercuric-chloride poisoning. These are reported in the *Journal of Laboratory and Clinical Medicine* for September.

Summing up the whole matter, Prof. Fantus shows that the antidotes of greatest value are Carter's Antidote, a mixture of sodium phosphite and sodium acetate, and a preparation which he himself recommends, consisting of sodium hypophosphite, hydrogen peroxide, and water. Carter's Antidote is available in tablet form: the hypophosphite-peroxide mixture must be mixed prior to using and care must be taken not to use too much of the peroxide, since this impairs its efficiency.

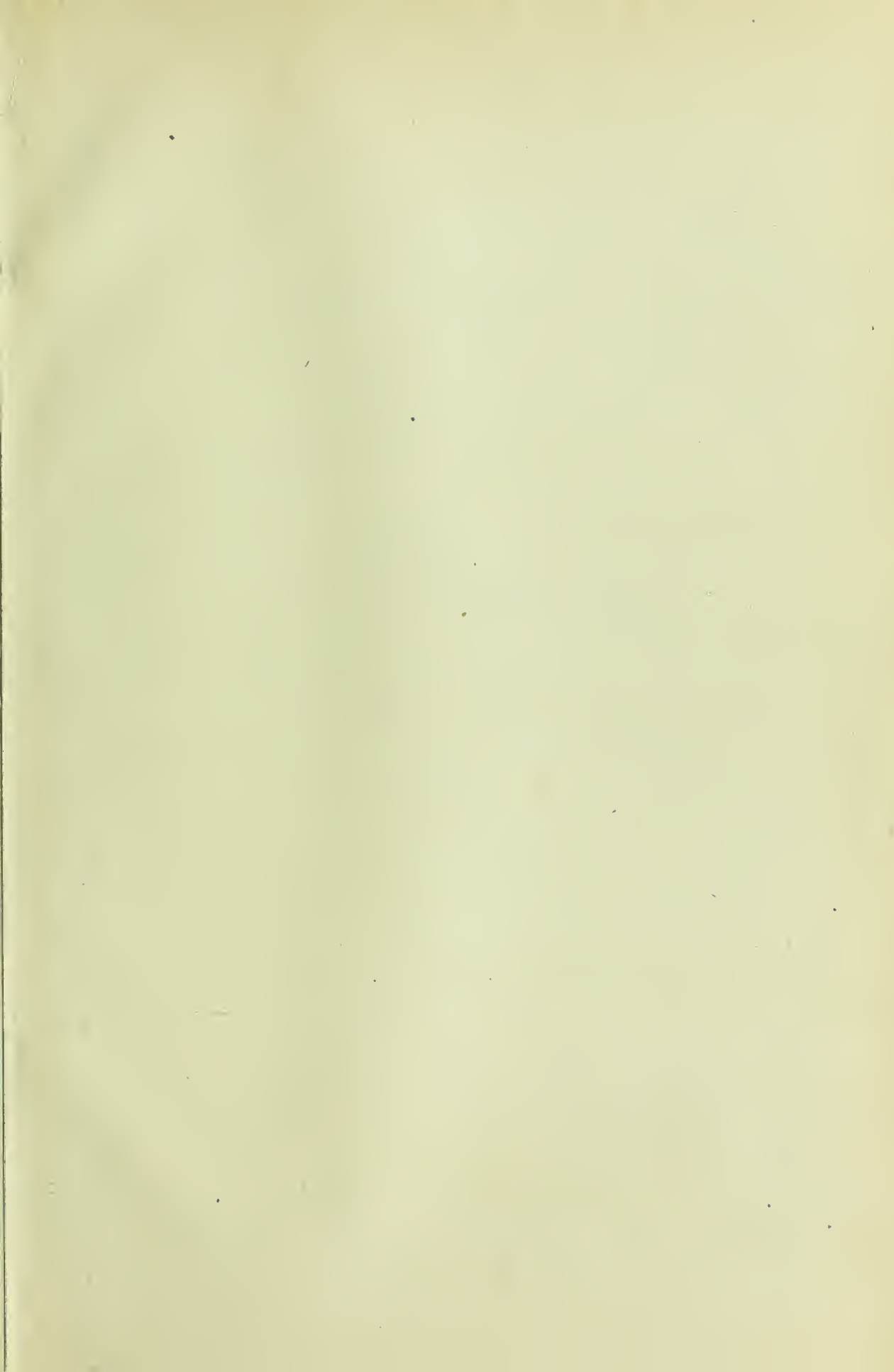
As a result of his studies, Prof. Fantus recommends the following antidotal treatment for mercuric-chloride poisoning: (1) the immediate administration of Carter's Antidote; (2) if this is not available, Fantus would give a mixture of sodium hypophosphite, 1 gm., water, 10 mls. and hydrogen peroxide, 5 mls.

This study affords a remarkable demonstration of the value of Carter's Antidote, devised by Dr. Thomas A. Carter, of Chicago, and placed upon the market some two years ago by The Abbott Laboratories of Chicago, who now supply it. This antidote, whose efficiency has been demonstrated by clinical trial (Doctor Carter has treated 74 cases of mercuric-chloride poisoning, with only four deaths), as well as by animal experiments.













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